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ABSTRACT

This training guides is designed to teach educators how to use data for school improvement. There is an emphasis on student achievement data, because achievement is the "bottom line" in assessing schools and school systems, but other types of data necessary to measure school quality are also considered. The chapters are: (1) "Continuous Improvement and Use of Data"; (2) "Data Collection"; (3) "Ethics, Relationships and School Politics"; (4) "Summarizing, Analyzing and Collecting Data"; and (5) "Resources." The "Resources" section contains 12 sample tables and an extensive bibliography. (SLD)

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Using Data for School Improvement

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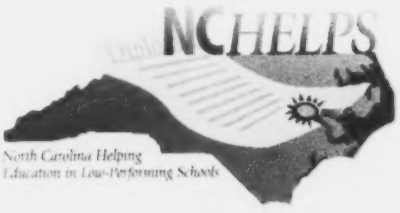

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INTRODUCTION

North Carolina Helping Education in Low-Performing Schools (NC HELPS) is a collaborative effort to garner the state's resources to improve low-performing and at-risk schools. Members of the collaborative are the

- Office of the Governor,
- State Board of Education,
- Department of Public Instruction,
- University of North Carolina,
- North Carolina Association of Independent Colleges and Universities,
- Department of Community Colleges, and the
- North Carolina Business Committee for Education.

Two key initiatives of the initiative are to provide schools with technical assistance partners that will facilitate the school's improvement efforts. This includes, but is not limited to, grant writing, needs/assets assessment, and managing change. In addition, educators working in these schools will be identifying service providers to assist with high-quality professional development, especially in the content areas and appropriate instructional and assessment strategies.

Using Data for School Improvement

Public Schools of North Carolina
State Board of Education
Department of Public Instruction

Using Data for School Improvement

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Section I:
Continuous Improvement and Use of Data

Continuous Improvement and Use of Data

Time	Purpose	Setting	Materials
1 hour	To understand the questions that link comprehensive data analysis and school improvement	Small Groups	Transparencies: How and Why, Questions that the Comprehensive Data to Schoolwide Improvement, Multiple Measures, One Measure, Notes: What Makes the Difference Chart Paper Markers Projector

Describe Activity	Tell participants they will explore the questions that will enable them to use data effectively.
Discuss Questions	Ask participants to brainstorm answers to the questions on the transparency: How and Why in small groups
Transparency: How and Why	Allow 8 minutes: Ask for group's responses to the questions and record on chart paper. Note that the reasons for gathering data should link to the uses of data.
Transparency: Questions that Tie Comprehensive Data to Schoolwide Improvement. Notes: What makes the difference?	Using Notes: What Makes the Difference, and transparency, Questions that Tie Comprehensive Data to Schoolwide Improvement. Discuss how the questions focus the data.
Define Multiple Measures	Instruct small groups to list the various data necessary to determine if the school is achieving its purpose. Allow 6 minutes for this activity.
Transparency: Multiple Measures	Ask groups to report out and record their responses on chart paper. When a group duplicates an already recorded response, place a check by the response to indicate.
Transparency: One Measure or Multiple	Using transparencies, compare the group's ideas to the measures listed. Ask participants why student achievement measures alone are not enough to guide continuous school improvement. Emphasize the need for multiple measures.

Continuous Improvement and Use of Data

What Makes the Difference with Successful Schools?

One of the key characteristics that separates successful schools from those that are not successful in their reform efforts is the use of data, an often neglected, but essential element of school improvement. Many schools gather data, but do not use the data, often because they do not know how. Whatever it is that keeps us from assessing our progress and products adequately, we must learn to listen, to observe, and to gather data systematically, and from a variety of sources, so we know where we are going and how we are progressing toward getting there. If adequate progress is not being made, skillful data collection and analysis can help give direction to what needs to be changed.

What Important Questions Tie Comprehensive Data Analysis to Schoolwide Improvement?

The most important question is: What is the purpose of school? Other important questions include:

- What do you expect students to know and be able to do by the time they leave the school? (Standards)
- What do you expect students to know and be able to do by the end of each year? (Benchmarks)
- How well will students be able to do what they want to do with the knowledge and skills they acquire by the time they leave school? (Performance)
- Do you know why you are getting the results you get? Do you know why you are not getting the results you want?
- What would your school and educational processes look like if your school were achieving its purpose, goals, and expectations for student learning?
- How do you want to use the data you will gather?

If the focus of your data analysis efforts is on the comprehensive improvement of the entire learning organization, all other purposes will be met. After determining why

you analyze your school's data, think about how the data are and will be used. Very often there is a "misconnect" between the answers to these two questions. We want the uses to align with the reasons for gathering the data.

What Are Multiple Measures and Why Are They Important?

With student achievement, more than one method of assessment allows students to demonstrate their full range of abilities. Collecting data on multiple occasions (over time) allows students several opportunities to demonstrate their abilities. So it is with schools. If staff want to know if the school is achieving its purpose and how to continually improve **all** aspects of the school for **all** the students, multiple measures--gathered over time, from varying sources, and various points of view--must be used.

Together, measures including demographics, perceptions, student learning, parent involvement, use of time, alignment of curriculum, instruction and assessment, professional development, targeting resources, and analyses of school processes can provide a powerful picture that can help us understand the school's impact on student achievement. These measures, when used together, give schools the information they need to accomplish and maintain different results.

How Do We Focus the Data?

Data analysis should not be about gathering data just because it is there. The data we gather and analyze must be focused on the purpose of the school--the core of everything that is done in the school--or the process will lead to nothing more than random acts of sporadic improvement, as opposed to focused improvement for better student results.

How Can We Make It Last? Comprehensive, Lasting Improvement

Schools cannot use student achievement measures alone for continuous school improvement, because the context of school is missing. Relying on a single measure can mislead schools into thinking they are analyzing student learning in a comprehensive fashion. That is, when we focus only on student learning measures, we see school personnel using their time figuring out how to **look better** on the student learning measures. While achievement is the bottom line of school improvement, we want school personnel to use their time figuring out how to **be better** for **all** students. If we want to get different results that last, we have to change the system that creates the results.

Transparency: How and Why

Why Analyze my school's data?

How will data be used?

Transparency: **Questions That Tie Comprehensive Data to Schoolwide Improvement**

What is the purpose of school? (Most Important)

What do we expect students to know and be able to do by the time they leave school? (Standards)

What do we expect students to know and be able to do by the end of each year? (Benchmarks)

How well will students be able to do what they want to do with the knowledge and skills they acquire by the time they leave school? (Performance)

Do we know why we are getting the results we get? Do we know why we are not getting the results we want?

What would our school and educational processes look like if our school were achieving its purpose, goals, and expectations for student learning?

How do we want to use the data we gather?

Transparency: Multiple Measures

Multiple Measures: collecting data from many sources on numerous occasions (over time).

Demographics

Perceptions

Student Learning

Parent Involvement

Use of Time

Alignment of Curriculum

Instruction and Assessment

Professional Development

Resources

Analysis of School Processes

Graphic: One Measure or Multiple

One Measure or Multiple?

Section II:
Data Collection

Data Collection

Time	Purpose	Setting	Materials
45 min.	To identify steps in data collection	Small Groups	Transparencies: Steps in Data/Information Collection, Handout: Practical Pointers of Collecting Information Chart Paper Markers Projector

Describe Activity	Tell participants they will practice some of the steps in data collection.
Give Assignment Transparency: *Steps in Information/Data Collection* Handout: *Practical Pointers for Collecting Information.*	Display transparency: Steps *in Information/Data Collection.* Tell participants to use Handout: Practical *Pointers for Collecting Information* to work through steps. Instruct small groups to work as school teams to plan data collection. Explain that they can use the vision and purposes from their school to structure their data collection plan. If the groups are from different schools they should choose a vision and purpose from one of the schools represented. Groups should develop two questions from step one and continue with the steps based on those two questions. The Pointers will assist them in developing each step. They should record their work on chart paper. Allow the groups 25 minutes to work.
Process the Activity Answer Questions	Ask groups to report out and post their work. Ask for questions or concerns.

Section II: Activity 2
Transparency

Steps in Information/Data Collection

1. **Identify your questions. What is it you want to know about?**

2. **Identify sources of information for each question or area of study.**

3. **Select methods that are appropriate for each question or area of study.**

4. **Develop a comprehensive schedule for the collection of information.**

5. **Assign specific tasks of collecting information to team members.**

Handout

Practical Pointers for Collecting Information

The school's ultimate Vision, Purpose(s), and Guiding Questions along with analysis from the Needs Assessment, are used to develop a Data Collection Plan and Schedule. This plan helps focus on obtaining the most critical information in a timely manner, so that the later data analysis will provide information from various sources into a basis for sound decision-making and future planning.

1. What information/data will be collected? What related information/data currently exist? What additional information is needed?

   Answers to the above questions should be guided by the purposes and guiding questions driving the school's ultimate vision. It is also important to use analysis of the results of the Needs Assessment at this point. What are you striving for?

2. Focus the information/data as much as possible to simplify the data collection and analysis processes to avoid ending up with unnecessary or excessive data.

3. What are the sources of needed information/data? Where does the data exist? Are there gaps in information?

   Often there are many sources of relevant information/data, but they are not all in one place. The best place to start is by

compiling a list of relevant, existing data and where that data can be found. In addition, there may be needed information / data that do not currently exist. In such cases, you may decide to assess these areas yourself using methods such as surveys, interviews, and / or focus groups.

Developing surveys requires some expertise in order to be sure that survey items are clear and that response choices allow you to actually get the information that you are seeking. Developing good survey or focus group questions up front will save a lot of time and other resources and will bring you much richer and more usable data in the end.

4. Who will collect information?

Decide ahead of time who will collect information, when they will do it, and under what conditions. It is important to talk to each person who will be participating to get his or her cooperation and support.

5. What is the information collection schedule?

The timing of information collection is an important consideration. First, keep in mind when the information / data and ultimate data analysis and report are needed, and then work backward. Second, consider when the information is going to be available. Finally, consider when the information can be conveniently collected being sensitive to the needs of others in the school.

6. What do you do when you run into problems of cooperation or people not taking the data collection seriously?

Practical Pointers continued

6. continued...

To avoid such problems, explain the needs assessment and its importance fully to participants and obtain their support prior to beginning information collection. If problems occur during the needs assessment, a private talk may help if you can show it is in everyone's best interest to participate.

Sometimes the use of confidentiality with questionnaires or interviews will alleviate concerns. It is important to be on the lookout for potential problems and deal with them immediately when they appear.

7. What can go wrong in data collection? (Possible solutions in parentheses.)

   a. Respondents misunderstand directions and consequently respond inappropriately (pilot test your methods).

   b. Inexperienced information collectors mess up (train your information collectors and have trial runs).

   c. Information gets lost (have a rule that no original data leave the office; duplicate data and computer files; keep original data under lock and key).

   d. Information is recorded incorrectly (build in crosschecks of recorded information).

Practical Pointers continued

8. How can you build rapport to maintain long-term working relationships?

   When collecting information, take time to explain your purposes so that participants are informed about how the results might affect them. This will help build rapport.

9. How important is the environment in information/data collection (e.g., free from distraction, confidential if necessary, good lighting and ventilation, comfortable seating)?

   Choose a pleasant environment for data collection if the session is going to take a while. Good lighting and ventilation, comfortable seating, adequate spacing for group testing, and adequate monitoring for group testing are all recommended.

10. Remember to say thank you.

    Follow up with a thank-you to any participants who went out of their way to provide information or to assist in your study.

Section III:
Ethics, Relationships and School Politics

Ethics, Relationships and School Politics

Time	Purpose	Setting	Materials
40 min.	To promote responsible data collection.	Small Groups	Handouts: *Ethical Considerations, Interpersonal Relations Guide, Dealing with School Politics, Guidelines for Informal Data Collection.* Homework Handouts from Section IV: *Understanding the ABCs Growth Standards, Notes on Interpreting Summary Reports*

Describe Activity	Tell participants they will work in groups to prepare brief presentations on Ethics, Relationships and School Policies
Make Assignment Handouts: *Ethical Considerations, Interpersonal Relations Guide, Dealing with School Politics.*	Ask participants to form three groups, combining small groups into three. Ask one group to work with handout: Ethical *Considerations*, one to work with *Interpersonal Relations Guide*, and one to work with *Dealing with School Politics*. Each group should develop a brief (4 min.) presentation on material assigned. Encourage them to develop examples or scenarios. Suggest they write a processing question to close their presentation. Allow 10 minutes for developing presentations.
Call for presentations	Ask each group to present.
Review Handout: *Guidelines for Informal Data Collection*	Using handout, ask participants for situations where informal data collection would be appropriate. Ask what ethical considerations might be necessary. Ask what other issues may be considered.
Process Activity	Ask for questions or concerns.
Assign Homework Section IV Handouts: *Understanding the ABCs Growth Standards, Notes on Interpreting Summary Reports.*	Ask participants to read homework handouts: Understanding *the ABCs Growth Standards* and *Notes on Interpreting Summary Reports.*

Section III: Activity 3
Handout

Ethical Considerations

Ethics refers primarily to the way in which participants are treated. Remember the following principles:

Confidentiality: If confidential records or other information are collected you are bound to protect that confidentiality and usually by keeping data or information under lock and key.

No embarrassment or harassment: Participants need to be protected from embarrassment or harassment. Individuals should not be identified in reports unless they give permission or unless there is an understanding beforehand.

Diplomacy and respect: Treat everyone with diplomacy and respect.

Protection from harm: No one should be subjected to any form of physical or psychological harm or even potential harm.

Parent permission policies: If data are being collected from students, most school districts have policies about parental permission. Find out about those policies and follow them.

Maintain objective: Remain aboveboard and neutral in the collection of information and the making of recommendations.

Honor promises: Honor promises and commitments.

No conflicts of interest: You must also be incorruptible, reporting possible conflicts of interest or attempts to influence the outcomes of the evaluation.

Maintain trust and integrity: Given the stake that many people have in the results of your work, trust and credibility
are essential ingredients.

Interpersonal Relations Guidelines

1. Interpersonal relationships can be strained if the evaluator is demanding, undiplomatic, and insensitive to the feelings of others.

2. Protocol violations will also lead to interpersonal strain (e.g., deviating from established forms of etiquette or deviating from the plan, as understood by the participants). You should make every effort to understand the views of participants and to honor them.

3. Evaluators should be good listeners, especially about the evaluation, and maintain good communications about the evaluation with participants.

4. Evaluators should also avoid disruption of routines and work schedules to the greatest extent possible.

Section III: Activity 3
Handout

Dealing with School Politics

The politics of evaluation enter when undue pressure is placed on the evaluator or participants in the evaluation. Forms of this pressure are lack of cooperation, attempts to derail or discredit the evaluation, or attempts to influence its outcomes.

It is hard to see when, if ever, political influences may appear, but there are some things you can do to minimize their appearance:

1. Establish and maintain open and good communications among your team members and stakeholders.

2. Anticipate political pressures and try to meet them head on, diplomatically, through private meetings or, if that does not work, assistance from a supervisor.

3. Involve all individuals or groups who may have a vested interest in the outcomes.

4. Have frequent meetings and "informal chats" to keep people informed about the evaluation and to enlist their support.

5. Write the report carefully and submit a draft for review comments to key stakeholders.

Section III: Activity 3
Handout

Guidelines for Informal Data Collection

1. Be descriptive in taking notes from informal data collection.

2. Gather a variety of information from different perspectives.

3. Cross-validate & triangulate by gathering different kinds of data.

4. Capture participants' views of their experiences in their words.

5. Select key informants wisely and use them carefully.

6. Be aware of and sensitive to the different stages of fieldwork.

   (a) Build trust and rapport at the entry stage.

   (b) Stay alert and disciplined during the more routine, middle phase of fieldwork.

   (c) Focus on pulling together a useful synthesis as the informal data collection period draws to a close.

   (d) Be disciplined and conscientious in taking detailed notes at all stages of informal data collection.

7. Be as involved as possible in fully experiencing the programwhile maintaining an analytical perspective.

8. Clearly separate description from interpretation and judgment.

9. Provide timely formative feedback as part of the verification process of informal data collection.

10. Include in your notes and summary report your own experiences, thoughts, and feelings as important informal data.

Michael Quinn Patton, Qualitative Evaluation and Research Methods, Sage, 1990, p. 273.

Understanding the ABCs Growth Standards and Performance Composite for the Elementary and Middle Grades

What are growth standards?

Each elementary and middle school has "expected growth" and "exemplary growth" standards. These numbers indicate (by grade level) how much the school's end-of-grade (EOG) Test scores averages should improve (by grade level) during the year. Each school's growth standard is unique, because it is based on a unique cohort of students at that school.

How are growth standards determined?

The growth standards are determined by a formula. The expected growth standard is based on statewide average growth, the true proficiency of students in a school, and something called "regression to the mean." The exemplary growth standard incorporates a value 10% above the statewide average growth in the formula. The basic formula is found in a publication called Accountability Brief, "*Setting Annual Growth Standards: The Formula*," Vol. 1, No. 1, published September 1996 (available from Accountability Services at DPI).

ABC Tools is a software program that school systems can use to determine actual and expected growth. Your local school system test coordinator can use ABC Tools software to perform calculations related to the ABCs growth formula. This document provides a simplified example of how the formula is applied.

How can we estimate the growth standards?

To estimate expected growth, look at the average rates of growth for North Carolina included in the growth formula. These are displayed in the table below. Expected growth for any grade level will not vary greatly from statewide average growth unless the school's pretest (previous year's end-of-grade test or grade 3 pretest) scores are very high or low compared to the state's pretest scores. Exemplary growth is approximately 110% of expected growth. The North Carolina average rates of growth, by grade level are:

Grade		State Average Growth in Reading	State Average Growth in Mathematics
"Pre"	"Post"		
3	3	6.2	12.8
3	4	5.2	7.3
4	5	4.6	7.4
5	6	3.0	7.1
6	7	3.3	6.5
7	8	2.7	4.9
8	10	Not available	Not available

Section III: Activity 3
Homework Handout

What is actual growth, and how is it determined?

Actual growth is the difference between the pretest (EOG 3rd grade Test, for example) and the posttest (EOG 4th grade Test). To determine actual growth for a school, subtract the pretest (last year's EOG or grade 3 pretest) mean from the posttest (the current year's EOG test) mean at each grade level in reading and mathematics.

How is writing included?

Writing performance is assessed at grades 4 and 7 using an index based on all students' scores. The calculation of improvement is not based on a matched set, or cohort, of students. Performance on the NC Writing Test is computed as an index, including of **all** students who take the writing test. The index is computed by multiplying the percent of students who score at Achievement Level IV by 3, Achievement Level III by 2, and Achievement Level II by 1. The results are added. The sum is divided by 3. *(The purpose of testing in the accountability model is to measure the percentage of students who are performing at or above grade level. Therefore, the higher the score on the writing test, the more it is weighted in the index. Level I scores are not given any weight; Level II scores are taken at value. Level III is multiplied by two because it is considered grade level, and Level IV is given maximum value in weighting because it is the highest achievement level possible on the test.)*

A writing index is computed for the current year and the two most recent previous years. The average of the two previous years' indexes is the baseline. Growth (or improvement) in writing is determined by subtracting the baseline from the *higher* of:

(Year One + Current Year) ÷ 2 OR (Year Two + Current Year) ÷ 2.

Are all students included in the ABCs model?

No. To be included in the ABCs for determination of growth in reading and mathematics, students must have pretest scores, posttest scores **and** they must be in membership (not attendance) at the school at least 106 days of the school year. There are no pretest or membership criteria for writing; all test scores are included in computing the grade 4 and grade 7 writing indexes.

How does a school calculate its standing?

First, a school subtracts the expected growth and exemplary growth standards from actual growth at each grade level in reading and mathematics. *(A useful mnemonic device: A before E, **A**ctual minus **E**xpected, or **A**ctual minus **E**xemplary.)*

Then, the differences (between actual and expected and actual and exemplary) at each grade level in reading and mathematics are standardized (divided by the standard deviations). The result is called standard growth.

To include writing, the writing improvement must be recentered. This means you must subtract 0.1 from the difference between the higher two-year index average and the baseline. (This adjustment makes zero represent strict improvement.) After subtracting,

the result is divided by the standard deviation. This operation produces the standard growth in writing (at grades 4 and 7). This calculation is illustrated later in this document.

Standard growth in each grade for reading, mathematics, and writing (grades 4 and 7 only) at a given school are added to compute the **Expected Growth Composite** and the **Exemplary Growth Composite**. If a school's expected growth composite is zero or greater, the school has met expected growth. If the school's exemplary growth composite is zero or greater, it has met exemplary growth. If the school meets the expected growth goal under the ABCs, it receives an incentive award; it receives an even greater award if it meets exemplary growth.

What if a school does not meet its expected growth goal?

A school is not penalized for not meeting expected growth. It is considered a school with adequate growth. However, if a school does not meet expected growth, **and** has fewer than 50% of its students performing at or above grade level (at Achievement Levels III and IV), it could be identified as a low-performing school.

What is a performance composite?

The performance composite is the percentage of students at a school whose EOG scores place them at Achievement Levels III and IV. To find the performance composite, the number and percentage of students at or above grade level (Achievement Levels III or IV) in each of the content areas across grades at each school are determined. The numbers of students at Levels III and IV in reading, math, and writing are added; this becomes the numerator of a fraction. The number of valid test scores across grade levels in reading, math, and writing are added; this becomes the denominator of the fraction. A percentage is derived from dividing the denominator into the numerator. This is the school's performance composite.

Can we see an example of the model applied all the way from the student level to the school level?

Priscilla and Kevin are two students in the fourth grade at Shady Brook School. In May of this current school year, all students in the school took the end-of-grade test in reading and mathematics.

Last year, Kevin and Priscilla took the end-of-grade test in reading and mathematics as third graders. They have 106 classmates in the current grade 4 who were in their grade 3 last year at Shady Brook, and these classmates also took the grade 3 end-of-grade tests. Additionally, there are 100 students in the current grade 3, and 120 students in the current grade 5 at Shady Brook. These grade 3 students took a pretest in reading and mathematics at the beginning of this school year; the grade 5 students took the grade 4 end-of-grade tests last year.

In other words, there is a matched set of students, sometimes referred to as a cohort, at Shady Brook. Each of these 328 students in the cohort has pretest scores and posttest

scores in reading and mathematics and were in membership at Shady Brook at least 106 days.

To calculate actual growth, look at an example from the test data of the two students. The current year's end-of-grade test scores are compared with the previous year's. (If Kevin and Priscilla were in grade 3, we would compare their grade 3 pretest with the grade 3 posttest scores.) The following tables illustrate Priscilla and Kevin's actual growth.

Priscilla	*(Previous Year)* Grade 3 EOG Score (pretest)	*(Current Year)* Grade 4 EOG Score (posttest)	*Difference* Actual Growth
Reading	140	145	5
Mathematics	133	143	10

Kevin	*(Previous Year)* Grade 3 EOG Score (pretest)	*(Current Year)* Grade 4 EOG Score (posttest)	*Difference* Actual Growth
Reading	140	145	4
Mathematics	138	150	12

To determine the actual growth for Shady Brook school by grade level, subtract the pretest (last year's) mean, or average, from the posttest (the current year's) mean, or average, at each grade level in reading and mathematics. The actual growth for Shady Brook by grade levels is shown below.

Subject/Grade Levels	**Actual Growth**	**Subject/Grade Levels**	**Actual Growth**
Reading 3	5.9	Math 3	12.9
Reading 4	6.6	Math 4	9.6
Reading 5	5.5	Math 5	8.3

Next, ABC Tools calculates expected and exemplary growth for each grade in reading and mathematics at Shady Brook. Once the expected growth is known, we subtract it from actual growth, and then divide by the standard deviation for the subject and grade level to determine standard growth.

For writing, here's the computation for the current year's writing index (grade 4) at Shady Brook:

25% of this year's fourth graders (Kevin and Priscilla's class) score at Level IV
44% of this year's fourth graders (Kevin and Priscilla's class) score at Level III
20% of this year's fourth graders (Kevin and Priscilla's class) score at Level II

a) $25 \times 3 = 75$ b) $75 + 88 + 20 = 183$

44 X 2 = 88
20 X1 = 20 c) 183 / 3 = 61

The current year's writing index for Shady Brook is 61.

To determine Shady Brook's baseline, we average Year One and Year Two indexes (the two years prior to the current year):

Year One index is 55.8; Year Two index is 58. The average, or baseline, is 56.9.

Next, we take the higher average indexes of:

a) Year One (55.8) + Current Year (61) = 116.8 ÷ 2 = 58.4

Or

b) Year Two (58) + Current Year (61) = 119 ÷ 2 = 59.5, which is 59.5

Then, we subtract the baseline:

c) 59.5 – 56.9 = 2.6

Recenter 2.6. Subtract 0.1 in order to make zero represent positive change. (This is done to assure that zero can be interpreted as strict improvement).

To determine the composite expected growth for Shady Brook, add the standard growth across grade levels in reading, mathematics, and writing as illustrated here.

Grades	Difference in Actual and Expected Growth	Standard Deviation of Growth Across the State	Standard Growth (Expected)
Reading			
Grade 3	-0.1	1.9	**-0.1**
Grade 4	+0.9	1.3	**+0.7**
Grade 5	+0.6	1.2	**+0.5**
Mathematics			
Grade 3	+0.1	2.6	**+0.0**
Grade 4	+1.3	2.1	**+0.6**
Grade 5	+0.3	2.0	**+0.2**
Writing			
Grade 4	2.6 - 0.1 = +2.5	6.1	**+0.4**
Total Expected Growth Composite			**+2.3**
			MET

If the sum is zero or greater, then Shady Brook met expected growth. Shady Brook's expected composite growth is 2.3, so the school met expected growth.

Steps similar to these are followed to determine the exemplary growth composite.

Section III: Activity 3
Homework Handout

Exemplary growth is subtracted from actual growth in each grade for reading, mathematics, and writing. (For writing, exemplary growth is the same as expected growth.) The difference is divided by the associated standard deviation to determine the standard growth for exemplary. Add the standard exemplary growth across grade levels and subjects (reading, math, and writing). The computations for exemplary growth are shown in the following table.

Grades	Actual Growth	Exemplary Growth Standard	Difference	Standard Deviation of Growth	Standard Growth (Exemplary)
Reading					
Grade 3	+5.9	+6.6	-0.7	1.9	**-0.4**
Grade 4	+6.6	+6.2	+0.4	1.3	**+0.3**
Grade 5	+5.5	+5.4	+0.1	1.2	**+0.1**
Mathematics					
Grade 3	+12.9	+14.0	-1.1	2.6	**-0.4**
Grade 4	+9.6	+9.1	+0.5	2.1	**+0.2**
Grade 5	+8.3	+8.7	-0.4	2.0	**-0.2**
Writing					
Grade 4			+2.5	6.1	**+0.4**
Total Exemplary Growth Compostie					**0.0**
					MET

If the total is zero or greater, the school met exemplary growth. Shady Brook's exemplary growth composite is 0. The school did meet exemplary growth.

What is Shady Brook's performance composite? Suppose Shady Brook did not meet its expected growth. If a school DOES NOT meet expected growth, it must have a performance composite of 50% or greater to avoid identification as a low performing school. The chart below illustrates the computations necessary to determine the performance composite at Shady Brook.

Grade	Reading		Mathematics		Writing		Performance Composite	
	# At or above Level III	# Test Scores	# At or above Level III	# Test Scores	# At or above Level III	# Test Scores	# At or Above Level III	# Test Scores
3	62	100	65	100	NA	NA	127	200
4	60	108	64	108	70	110	194	326
5	80	120	75	120	NA	NA	155	240
Totals	*202*	*328*	*204*	*328*	*70*	*110*	*476*	*766*
%	202 ÷ 328 = .6158 = 61.6%		204 ÷ 328 = .6219 = 62.2%		70 ÷ 110 = .6363 = 63.6%		476 ÷766 = .6214 = **62.1%**	

The performance composite is 62.1%. Even if Shady Brook DID NOT MEET expected growth, it would still not be identified as a low performing school, because at least half of its students are performing at or above grade level.

Notes on Interpreting Data

Produce Summary Statistics from ABC Tools software.

Check percent at or above Level III, then check numbers/percent of scores at each level.

Check disaggregated data; ask LEA Test Coordinator for special reports by groups (filters) produced by ABC Tools.

SUMMARY STATISTICS* Grade 5; 1997 performance 8 - 13 - 1997

School: Subject: MATH G597 Excluding children with less than 106 days in membershi

ALL STUDENTS Performance: % performing at or above grade level

	All	Male	Female
Total Number of Scores:	64	31	33
Mean Score:	150.1	147.2	152.8
Standard Deviation:	8.4	8.4	7.5
Index:	50.5	39.8	60.6
Percent at or above Level III:	53.1%	38.7%	66.7%
Number/Percent of Scores at			
Level I:	9 14.1%	8 25.8%	1 3.0%
Level II:	21 32.8%	11 35.5%	10 30.3%
Level III:	26 40.6%	10 32.2%	16 48.5%
Level IV:	8 12.5%	2 6.4%	6 18.2%

Numbers, % at each level

WHITE Look here for additional disaggregated data

	All	Male	Female
Total Number of Scores:	23	12	11
Mean Score:	149.9	147.1	153.1
Standard Deviation:	8.5	9.2	6.4
Index:	46.4	33.3	60.6

Section IV:
Summarizing, Analyzing and Reporting Data

Summarizing, Analyzing and Reporting Data

Time	Purpose	Setting	Materials
3 hours	To understand data analysis To learn to "read" one type of school data To effectively report results.	Small Groups	Transparencies: *Data Analysis Questions to get Started, Why Use Data for Continuous School Improvement* Notes: *Data Analysis* Handout: *Collecting and Summarizing Data* Chart Paper Markers Projector

Describe Activity	Tell participants they will be working on comprehensive data analysis using the information they read in the homework handouts: *Understanding the ABCs* and *Notes on Interpreting Data.*
Review and discuss	Using Transparency: *Data Analysis Questions* and Notes, *Data Analysis and Handout, Collecting and Summarizing Data*, explain that these questions are similar to questions posed at the beginning of the data collection process.
Transparency: *Data Analysis Questions to Get Started,* and Notes: *Data Analysis* and Handout: *Collecting and Summarizing Data*	Ask participants to discuss reasons why it may be important to ask these questions again.
Transparency: *Why Use Data for Continuous School Improvement*	Discuss how the data analysis will drive the school plan. Also note that these questions should be addressed when reporting results.
Make Assignment	Tell groups to divide into three groups. One group will analyze the elementary school data, another the middle school, and another the high school. Ask groups to form the big pictures that the data reveal. They should consider the kinds of questions the data generate and record their findings on chart paper. Allow 40 minutes.
Process the Activity	Ask groups to report out and post their work. Discuss questions and issues after each report.

Make Assignment	Ask groups to revisit work and pick out key messages they could use to report results in a newsletter or newspaper. Allow 6-8 minutes.
Process Activity	Ask each group to share simplified report.
Review Resources	Call attention to resources distributed as handouts.
Answer Questions	Ask for questions or concerns.

Data Analysis
Questions to Get Started

As you begin your comprehensive data analysis, review the following questions.

1. **What is the purpose of your school?**
2. **What data are currently collected?**
3. **What is the purpose of collection the data?**
4. **How are the currently collected data used?**
5. **What additional data need to be collected to measure whether or not your purpose is being achieved?**
6. **What are the roadblocks to collecting data at your school?**
7. **What are the roadblocks to analyzing data at your school?**
8. **What are the roadblocks to reporting data at your school?**

Victoria L. Bernhardt, Data Analysis for Comprehensive Schoolwide Improvement, Eye on Education, Inc., 1998, p. 11.

Data Analysis

How Do We Put It All Together to Make Sense to All Users? The focus for the data analyses work--the purpose or vision of school--is clarified and becomes a guide for all school analyses. Even when a problem has been identified, the problem is still grounded in the prupose of the school and what the school is attempting to do for and with children. With this clarity, schools can begin to think about, talk about, ask questions and find the data elements that can begin to answer the questions. What is needed at this point is a data analysis plan, essentially mapping the big questions (i.e., Why are all third graders not reading on grade level?) of the continuous improvement process (grounded in the school vision or purpose), the data elements that answer these questions, what gaps there are in the data, and corrective actions that can be taken.

All Staff Able to Understand and Use the Data. Everyone on staff needs to understand, explain, and be able to use the data that is gathered about the school. One way of getting everyone to "own" the data is to get everyone involved in a systematic group discussion focused on the data. Group discussion should guide the understanding and demystification of the data, so that staff are not afraid to ask questions about what they do not know and are able to make suggestions about possible causes and solutions.

Problem analysis techniques help all staff members see the same processes and understand them in the same way. Group processes and tools are helpful for desensitizing the information and the discussion around problems and causes. Some effective group processes, usually used in various combinations, include such processes as brainstorming, problem analysis teams, forcefield analysis, problem solving, and the nominal group technique. Remember, no one knows the school as well as an open, honest staff. Laying out the information helps all staff see the big picture of the school for the students.

From Analysis to Development of School Improvement Plan. After analyzing root causes of problems, and looking for solutions, the team must plan to put the solutions into action by asking:

- Are our solutions congruent with the purpose of the school, and what are we trying to do ultimately for all students?
- Does our plan include a way to measure change?
- Does our plan include specific dates for implementation & review?
- Do our budget priorities line up with planned priorities?
- Does our plan truly represent an objective, analytical look at the root causes of problems and solutions?

Quality plans include what is to be done, who is responsible for making sure that it gets done, and timelines (i.e., by when the work will be done). It is not uncommon for the problem analysis to lead to the need to gather more data.

How Do We Communicate the Results in Meaningful Ways? Whether communicating data analysis results to educators or non-educators, the person communicating the data analysis results has an obligation to interpret all the data so that pieces are not fragmented, omitted (so as to slant or misrepresent the data), and so the data can be interpreted easily.

Know Your Audience and Vary Your Method Accordingly. Many methods exist for reporting data results. It is important to match the method to the audience. Each method will require slightly different approaches to presenting the data visually and discussing it in the text. For communication to large audiences consider using one or more of the following:

- article in the local newspaper by an education reporter
- public meeting or news conference presented by the superintendent
- newsletters
- special events
- web sites
- school summary report

Graphs (or charts) are a powerful means of communicating data analysis results. Data graphics display multiple measures in terms of points, lines, bars, symbols, and pictures. Graphs set the stage for discussion, convey a message, or reinforce a central point. Graphs are designed to be concise in conveying data and be readily digestible. Graphs allow us to move easily from the analytical to the descriptive or vice versa.

Focus and Simplify the Reporting of Results and Improvement Plan. The key skill in communicating results is the ability to simplify and eliminate the unnecessary so that the necessary can speak. It is definitely within reason to request the assistance or consultation from your district --or some type of testing specialist during this phase. It takes stepping back from all the details and picking out the key messages for most audiences. Avoid the temptation to overwhelm the audience with data. More comprehensive charts, graphs, an reports can be available upon request. The finer details need to be understood by the school staff, with each teacher knowing and understanding his or her data analysis and improvement and how it fits into the total school plan.

Section IV: Activity 4
Handout

Collecting and Summarizing Data

Data Collection Instruments/Methods	Means of Data Collection	Summarizing Data
Tests: collections of questions that measure student performance on a broad range of skills and knowledge. (E.g. state tests like EOG, EOC, Writing, Competency, SAT)	• Paper and pencil (most common at **state level** and most **classrooms**) Common in most classrooms: • Oral • Performance (complex demonstrations) • Portfolio collections (includes a wide variety of assessments)	Tests typically provide a clear, easily interpreted summary for the classroom, school, individual student, and district. Manuals & district testing coordinators are resources for score interpretation.
Surveys: collections of questions on a small number of issues usually given to a large number of potential respondents.	**State tests** provide student demographic information as well as achievement related information collected in Student Survey Questions included on the tests. • Mail surveys (using questionnaires) • Telephone surveys (using interviewers) • In person interviews (using trained interviewers) • Intact Group surveys (distribute form at a meeting or in classroom)	List each question, summarize the responses for each question (frequency and percent). For open-ended items, give verbatim responses for less than 20 respondents; for large numbers, categorize responses and give frequencies and percentages. Always give summary of responses.

Section IV: Activity 4
Handout

Data Collection Instruments/Methods	Means of Data Collection	Summarizing Data
Questionnaires: collections of standard questions about a few issues.	•Form used for response to questions	Same as surveys
Interviews/Focus Groups: collections of questions (usually a standard set) about specific issues administered in person to a series of individual interviews or to small groups of people in focus groups.	•Personal contact to deliver questions & record responses needed to probe beyond initial responses, get a fast response, or boost the rate of response.	Categorize responses to each question across respondents. Summarize trends or issues identified. Use direct quotations to make key points.
Attitude Scales: collections of questions to get information about predispositions toward some group, institution, or abstract concept.	•Advisable to select from existing instruments, modifying wording, if necessary, keeping the format intact, rather than constructing your own.	Formats differ across scales. Most common form is Likert scale, a 5-point scale labeled "strongly agree" to "strongly disagree." Analyze each item with frequency and percentage. May also calculate mean and standard deviation.
Observation Checklists: a list of characteristics that either exist or do not exist.	•All items on the checklist are things clearly observable or can be documented in specific way. The checklist should be as comprehensive as possible.	Vary greatly in format. Often, frequency counts will suffice. Usually, the guide that accompanies a published checklist provides procedures for data analysis.

Section IV: Activity 4
Handout

Data Collection Instruments/Methods	Means of Data Collection	Summarizing Data
Unobtrusive Measures: information collected without affecting the natural behaviors of those being studied. Several observations made over time, rather than a single observation on which to base all impressions.	• Observations Capture "typical" behavior (over several observations) rather than "contrived or peak" behavior (putting "best foot forward for your one visit").	Be descriptive in making observation notes. Cross validate observations with information from other sources.
Document Analysis: summarizes the content of a document or series of similar documents (noting trends over time).	• Archives Examples include reports of test analysis, demographic data analysis, research reports, or even newspaper coverage on a topic of interest noting important findings or issues.	Basic source of information about decisions and background. Can give ideas for important questions to pursue through direct observations and interviews.

Why Use Data

for Continuous

School Improvement?

Continuous improvement is the process of systematically determining the quality of a school or program and how it can be improved.

Questions:

How good is the school or program?

How do you know how good it is?

Is there room for improvement?

What should be improved and in what ways should it be changed?

Section V:

Resources

Sample ABC Tools Growth Reports and Summaries for Elementary, Middle, and High Schools

SUMMARY STATISTICS* 9 - 16 - 1997

School: Subject: READING G397 Excluding children with less than 106 days in membership

ALL STUDENTS

	All		Male		Female	
Total Number of Scores:	24		11		13	
Mean Score:	137.7		135.1		139.8	
Standard Deviation:	8.0		7.5		7.8	
Index:	40.3		36.4		43.6	
Percent at or above Level III:	33.3%		27.3%		38.5%	
Number/Percent of Scores at						
Level I:	4	16.7%	2	18.2%	2	15.4%
Level II:	12	50.0%	6	54.5%	6	46.2%
Level III:	7	29.2%	3	27.3%	4	30.8%
Level IV:	1	4.2%	0	0.0%	1	7.7%

BLACK

	All		Male		Female	
Total Number of Scores:	21		9		12	
Mean Score:	138.6		135.2		141.2	
Standard Deviation:	7.4		7.0		6.6	
Index:	42.9		37.0		47.2	
Percent at or above Level III:	33.3%		22.2%		41.7%	
Number/Percent of Scores at						
Level I:	2	9.5%	1	11.1%	1	8.3%
Level II:	12	57.1%	6	66.7%	6	50.0%
Level III:	6	28.6%	2	22.2%	4	33.3%
Level IV:	1	4.8%	0	0.0%	1	8.3%

* Summary statistics are not shown if the"All" N-count is less than five. Male and Female summary statistics are not shown if either "Male" or "Female" N-counts are less than two.

SUMMARY STATISTICS* 9 - 16 - 1997

School: Subject: MATH G397 Excluding children with less than 106 days in membership

ALL STUDENTS

	All		Male		Female	
Total Number of Scores:	24		11		13	
Mean Score:	133.5		127.6		138.5	
Standard Deviation:	12.2		11.6		10.4	
Index:	45.8		33.3		56.4	
Percent at or above Level III:	50.0%		36.4%		61.5%	
Number/Percent of Scores at						
Level I:	5	20.8%	4	36.4%	1	7.7%
Level II:	7	29.2%	3	27.3%	4	30.8%
Level III:	10	41.7%	4	36.4%	6	46.2%
Level IV:	2	8.3%	0	0.0%	2	15.4%

BLACK

	All		Male		Female	
Total Number of Scores:	21		9		12	
Mean Score:	135.4		128.2		140.8	
Standard Deviation:	10.5		10.3		6.9	
Index:	49.2		33.3		61.1	
Percent at or above Level III:	52.4%		33.3%		66.7%	
Number/Percent of Scores at						
Level I:	3	14.3%	3	33.3%	0	0.0%
Level II:	7	33.3%	3	33.3%	4	33.3%
Level III:	9	42.8%	3	33.3%	6	50.0%
Level IV:	2	9.5%	0	0.0%	2	16.7%

* Summary statistics are not shown if the "All" N-count is less than five. Male and Female summary statistics are not shown if either "Male" or "Female" N-counts are less than two.

*SUMMARY STATISTICS 9 - 16 - 1997 Page 2

School: Subject: WRITING 4 W4O97

ALL STUDENTS

	All	Male	Female
Total Number of Students	25	11	14
Index	50.7	48.5	52.4

	N	Percent	N	Percent	N	Percent
At or Above 2.5	13	52.0	5	45.5	8	57.1
Level I (0-1, 6-8)	0	0.0	0	0.0	0	0.0
Level II (1.5, 2)	12	48.0	6	54.5	6	42.8
Level III (2.5, 3)	13	52.0	5	45.5	8	57.1
Level IV (3.5, 4)	0	0.0	0	0.0	0	0.0
Conventions**						
++	21	84.0				
+-	1	4.0				
-+	1	4.0				
--	2	8.0				

*SUMMARY STATISTICS 9 - 16 - 1997 Page 2

School: 090 328 Subject: WRITING 4 W4O97

BLACK

	All	Male	Female
Total Number of Students	23	10	13
Index	49.3	46.7	51.3

	N	Percent	N	Percent	N	Percent
At or Above 2.5	11	47.8	4	40.0	7	53.8
Level I (0-1, 6-8)	0	0.0	0	0.0	0	0.0
Level II (1.5, 2)	12	52.2	6	60.0	6	46.2
Level III (2.5, 3)	11	47.8	4	40.0	7	53.8
Level IV (3.5, 4)	0	0.0	0	0.0	0	0.0
Conventions**						
++	19	82.6				
+-	1	4.3				
-+	1	4.3				
--	2	8.7				

*SUMMARY STATISTICS 9 - 16 - 1997 Page 1

School: Subject: WRITING 7 W7O97

ALL STUDENTS

	All	Male	Female
Total Number of Students	29	8	21
Index	54.0	54.2	54.0

	N	Percent	N	Percent	N	Percent
At or Above 2.5	18	62.1	5	62.5	13	61.9
Level I (0-1, 6-8)	0	0.0	0	0.0	0	0.0
Level II (1.5, 2)	11	37.9	3	37.5	8	38.1
Level III (2.5, 3)	18	62.1	5	62.5	13	61.9
Level IV (3.5, 4)	0	0.0	0	0.0	0	0.0
Conventions**						
++	18	62.1				
+-	0	0.0				
-+	9	31.0				
--	2	6.9				

*SUMMARY STATISTICS 9 - 16 - 1997 Page 1

School: 090 329 Subject: WRITING 7 W7O97

BLACK

	All	Male	Female
Total Number of Students	26	7	19
Index	56.4	57.1	56.1

	N	Percent	N	Percent	N	Percent
At or Above 2.5	18	69.2	5	71.4	13	68.4
Level I (0-1, 6-8)	0	0.0	0	0.0	0	0.0
Level II (1.5, 2)	8	30.8	2	28.6	6	31.6
Level III (2.5, 3)	18	69.2	5	71.4	13	68.4
Level IV (3.5, 4)	0	0.0	0	0.0	0	0.0
Conventions**						
++	18	69.2				
+-	0	0.0				
-+	7	26.9				
--	1	3.8				

SUMMARY STATISTICS* 9 - 16 - 1997

School: Subject: READING G497 Excluding children with less than 106 days in membership

ALL STUDENTS

	All		Male		Female	
Total Number of Scores:	23		9		14	
Mean Score:	140.9		139.7		141.6	
Standard Deviation:	8.3		9.1		7.6	
Index:	40.6		37.0		42.9	
Percent at or above Level III:	34.8%		22.2%		42.8%	
Number/Percent of Scores at						
Level I:	4	17.4%	2	22.2%	2	14.3%
Level II:	11	47.8%	5	55.5%	6	42.8%
Level III:	7	30.4%	1	11.1%	6	42.8%
Level IV:	1	4.3%	1	11.1%	0	0.0%

BLACK

	All		Male		Female	
Total Number of Scores:	21		8		13	
Mean Score:	140.7		139.8		141.3	
Standard Deviation:	8.6		9.6		7.8	
Index:	39.7		37.5		41.0	
Percent at or above Level III:	33.3%		25.0%		38.5%	
Number/Percent of Scores at						
Level I:	4	19.0%	2	25.0%	2	15.4%
Level II:	10	47.6%	4	50.0%	6	46.2%
Level III:	6	28.6%	1	12.5%	5	38.5%
Level IV:	1	4.8%	1	12.5%	0	0.0%

* Summary statistics are not shown if the"All" N-count is less than five. Male and Female summary statistics are not shown if either "Male" or "Female" N-counts are less than two.

SUMMARY STATISTICS* 9 - 16 - 1997

School: Subject: MATH G497 Excluding children with less than 106 days in membership

ALL STUDENTS

	All		Male		Female	
Total Number of Scores:	23		9		14	
Mean Score:	140.2		138.3		141.4	
Standard Deviation:	9.5		12.1		7.1	
Index:	40.6		37.0		42.9	
Percent at or above Level III:	39.1%		33.3%		42.8%	
Number/Percent of Scores at						
Level I:	5	21.7%	3	33.3%	2	14.3%
Level II:	9	39.1%	3	33.3%	6	42.8%
Level III:	8	34.8%	2	22.2%	6	42.8%
Level IV:	1	4.3%	1	11.1%	0	0.0%

BLACK

	All		Male		Female	
Total Number of Scores:	21		8		13	
Mean Score:	140.4		139.6		140.8	
Standard Deviation:	9.4		12.3		7.0	
Index:	41.3		41.7		41.0	
Percent at or above Level III:	38.1%		37.5%		38.5%	
Number/Percent of Scores at						
Level I:	4	19.0%	2	25.0%	2	15.4%
Level II:	9	42.8%	3	37.5%	6	46.2%
Level III:	7	33.3%	2	25.0%	5	38.5%
Level IV:	1	4.8%	1	12.5%	0	0.0%

* Summary statistics are not shown if the "All" N-count is less than five. Male and Female summary statistics are not shown if either "Male" or "Female" N-counts are less than two.

SUMMARY STATISTICS* 9 - 16 - 1997

School: Subject: READING G597 Excluding children with less than 106 days in membership

ALL STUDENTS

	All		Male		Female	
Total Number of Scores:	23		9		14	
Mean Score:	149.0		143.9		152.4	
Standard Deviation:	8.6		7.5		7.5	
Index:	50.7		25.9		66.7	
Percent at or above Level III:	52.2%		22.2%		71.4%	
Number/Percent of Scores at						
Level I:	4	17.4%	4	44.4%	0	0.0%
Level II:	7	30.4%	3	33.3%	4	28.6%
Level III:	8	34.8%	2	22.2%	6	42.8%
Level IV:	4	17.4%	0	0.0%	4	28.6%

BLACK

	All		Male		Female	
Total Number of Scores:	22		9		13	
Mean Score:	148.5		143.9		151.8	
Standard Deviation:	8.4		7.5		7.5	
Index:	48.5		25.9		64.1	
Percent at or above Level III:	50.0%		22.2%		69.2%	
Number/Percent of Scores at						
Level I:	4	18.2%	4	44.4%	0	0.0%
Level II:	7	31.8%	3	33.3%	4	30.8%
Level III:	8	36.4%	2	22.2%	6	46.2%
Level IV:	3	13.6%	0	0.0%	3	23.1%

* Summary statistics are not shown if the"All" N-count is less than five. Male and Female summary statistics are not shown if either "Male" or "Female" N-counts are less than two.

SUMMARY STATISTICS* 9 - 16 - 1997

School: Subject: MATH G597 Excluding children with less than 106 days in membership

ALL STUDENTS

	All		Male		Female	
Total Number of Scores:	23		9		14	
Mean Score:	149.0		144.4		152.0	
Standard Deviation:	8.7		5.6		9.0	
Index:	46.4		33.3		54.8	
Percent at or above Level III:	52.2%		22.2%		71.4%	
Number/Percent of Scores at						
Level I:	4	17.4%	2	22.2%	2	14.3%
Level II:	7	30.4%	5	55.5%	2	14.3%
Level III:	11	47.8%	2	22.2%	9	64.3%
Level IV:	1	4.3%	0	0.0%	1	7.1%

BLACK

	All		Male		Female	
Total Number of Scores:	22		9		13	
Mean Score:	148.8		144.4		151.8	
Standard Deviation:	8.8		5.6		9.3	
Index:	45.5		33.3		53.8	
Percent at or above Level III:	50.0%		22.2%		69.2%	
Number/Percent of Scores at						
Level I:	4	18.2%	2	22.2%	2	15.4%
Level II:	7	31.8%	5	55.5%	2	15.4%
Level III:	10	45.5%	2	22.2%	8	61.5%
Level IV:	1	4.5%	0	0.0%	1	7.7%

* Summary statistics are not shown if the "All" N-count is less than five. Male and Female summary statistics are not shown if either "Male" or "Female" N-counts are less than two.

SUMMARY STATISTICS* 9 - 16 - 1997

School: - Subject: READING G697 Excluding children with less than 106 days in membership

ALL STUDENTS

	All	Male	Female
Total Number of Scores:	20	8	12
Mean Score:	149.8	151.0	149.0
Standard Deviation:	9.2	10.7	8.1
Index:	46.7	50.0	44.4
Percent at or above Level III:	40.0%	50.0%	33.3%
Number/Percent of Scores at			
Level I:	3 15.0%	2 25.0%	1 8.3%
Level II:	9 45.0%	2 25.0%	7 58.3%
Level III:	5 25.0%	2 25.0%	3 25.0%
Level IV:	3 15.0%	2 25.0%	1 8.3%

BLACK

	All	Male	Female
Total Number of Scores:	18	7	11
Mean Score:	149.6	149.9	149.4
Standard Deviation:	9.4	11.0	8.3
Index:	46.3	47.6	45.5
Percent at or above Level III:	38.9%	42.8%	36.4%
Number/Percent of Scores at			
Level I:	3 16.7%	2 28.6%	1 9.1%
Level II:	8 44.4%	2 28.6%	6 54.5%
Level III:	4 22.2%	1 14.3%	3 27.3%
Level IV:	3 16.7%	2 28.6%	1 9.1%

* Summary statistics are not shown if the"All" N-count is less than five. Male and Female summary statistics are not shown if either "Male" or "Female" N-counts are less than two.

SUMMARY STATISTICS* 9 - 16 - 1997

School: Subject: MATH G697 Excluding children with less than 106 days in membership

ALL STUDENTS

	All		Male		Female	
Total Number of Scores:	20		8		12	
Mean Score:	152.5		154.8		151.0	
Standard Deviation:	7.1		7.5		6.3	
Index:	40.0		45.8		36.1	
Percent at or above Level III:	40.0%		50.0%		33.3%	
Number/Percent of Scores at						
Level I:	4	20.0%	1	12.5%	3	25.0%
Level II:	8	40.0%	3	37.5%	5	41.7%
Level III:	8	40.0%	4	50.0%	4	33.3%
Level IV:	0	0.0%	0	0.0%	0	0.0%

BLACK

	All		Male		Female	
Total Number of Scores:	18		7		11	
Mean Score:	152.0		153.4		151.1	
Standard Deviation:	6.9		7.1		6.6	
Index:	38.9		42.9		36.4	
Percent at or above Level III:	38.9%		42.8%		36.4%	
Number/Percent of Scores at						
Level I:	4	22.2%	1	14.3%	3	27.3%
Level II:	7	38.9%	3	42.8%	4	36.4%
Level III:	7	38.9%	3	42.8%	4	36.4%
Level IV:	0	0.0%	0	0.0%	0	0.0%

* Summary statistics are not shown if the "All" N-count is less than five. Male and Female summary statistics are not shown if either "Male" or "Female" N-counts are less than two.

SUMMARY STATISTICS* 9 - 16 - 1997

School: Subject: READING G797 Excluding children with less than 106 days in membership

ALL STUDENTS

	All		Male		Female	
Total Number of Scores:	28		7		21	
Mean Score:	155.2		157.0		154.6	
Standard Deviation:	6.2		5.3		6.4	
Index:	52.4		52.4		52.4	
Percent at or above Level III:	50.0%		42.8%		52.4%	
Number/Percent of Scores at						
Level I:	1	3.6%	0	0.0%	1	4.8%
Level II:	13	46.4%	4	57.1%	9	42.8%
Level III:	11	39.3%	2	28.6%	9	42.8%
Level IV:	3	10.7%	1	14.3%	2	9.5%

BLACK

	All		Male		Female	
Total Number of Scores:	26		7		19	
Mean Score:	154.9		157.0		154.1	
Standard Deviation:	6.2		5.3		6.4	
Index:	51.3		52.4		50.9	
Percent at or above Level III:	50.0%		42.8%		52.6%	
Number/Percent of Scores at						
Level I:	1	3.8%	0	0.0%	1	5.3%
Level II:	12	46.2%	4	57.1%	8	42.1%
Level III:	11	42.3%	2	28.6%	9	47.4%
Level IV:	2	7.7%	1	14.3%	1	5.3%

* Summary statistics are not shown if the"All" N-count is less than five. Male and Female summary statistics are not shown if either "Male" or "Female" N-counts are less than two.

SUMMARY STATISTICS* 9 - 16 - 1997

School: Subject: MATH G797 Excluding children with less than 106 days in membership

ALL STUDENTS

	All		Male		Female	
Total Number of Scores:	28		7		21	
Mean Score:	159.0		160.0		158.6	
Standard Deviation:	8.0		5.5		8.6	
Index:	41.7		42.9		41.3	
Percent at or above Level III:	32.1%		14.3%		38.1%	
Number/Percent of Scores at						
Level I:	5	17.9%	0	0.0%	5	23.8%
Level II:	14	50.0%	6	85.7%	8	38.1%
Level III:	6	21.4%	0	0.0%	6	28.6%
Level IV:	3	10.7%	1	14.3%	2	9.5%

BLACK

	All		Male		Female	
Total Number of Scores:	26		7		19	
Mean Score:	158.5		160.0		157.9	
Standard Deviation:	7.7		5.5		8.3	
Index:	39.7		42.9		38.6	
Percent at or above Level III:	30.8%		14.3%		36.8%	
Number/Percent of Scores at						
Level I:	5	19.2%	0	0.0%	5	26.3%
Level II:	13	50.0%	6	85.7%	7	36.8%
Level III:	6	23.1%	0	0.0%	6	31.6%
Level IV:	2	7.7%	1	14.3%	1	5.3%

* Summary statistics are not shown if the "All" N-count is less than five. Male and Female summary statistics are not shown if either "Male" or "Female" N-counts are less than two.

SUMMARY STATISTICS* 9 - 16 - 1997

School: Subject: READING G897 Excluding children with less than 106 days in membership

ALL STUDENTS

	All		Male		Female	
Total Number of Scores:	26		11		15	
Mean Score:	153.9		150.4		156.5	
Standard Deviation:	6.9		6.7		5.8	
Index:	41.0		30.3		48.9	
Percent at or above Level III:	34.6%		18.2%		46.7%	
Number/Percent of Scores at						
Level I:	3	11.5%	3	27.3%	0	0.0%
Level II:	14	53.8%	6	54.5%	8	53.3%
Level III:	9	34.6%	2	18.2%	7	46.7%
Level IV:	0	0.0%	0	0.0%	0	0.0%

BLACK

	All		Male		Female	
Total Number of Scores:	26		11		15	
Mean Score:	153.9		150.4		156.5	
Standard Deviation:	6.9		6.7		5.8	
Index:	41.0		30.3		48.9	
Percent at or above Level III:	34.6%		18.2%		46.7%	
Number/Percent of Scores at						
Level I:	3	11.5%	3	27.3%	0	0.0%
Level II:	14	53.8%	6	54.5%	8	53.3%
Level III:	9	34.6%	2	18.2%	7	46.7%
Level IV:	0	0.0%	0	0.0%	0	0.0%

* Summary statistics are not shown if the"All" N-count is less than five. Male and Female summary statistics are not shown if either "Male" or "Female" N-counts are less than two.

SUMMARY STATISTICS* 9 - 16 - 1997

School: Subject: MATH G897 Excluding children with less than 106 days in membership

ALL STUDENTS

	All	Male	Female
Total Number of Scores:	26	11	15
Mean Score:	160.8	159.4	161.8
Standard Deviation:	8.7	8.6	8.7
Index:	34.6	30.3	37.8
Percent at or above Level III:	26.9%	18.2%	33.3%
Number/Percent of Scores at			
Level I:	8 30.8%	4 36.4%	4 26.7%
Level II:	11 42.3%	5 45.5%	6 40.0%
Level III:	5 19.2%	1 9.1%	4 26.7%
Level IV:	2 7.7%	1 9.1%	1 6.7%

BLACK

	All	Male	Female
Total Number of Scores:	26	11	15
Mean Score:	160.8	159.4	161.8
Standard Deviation:	8.7	8.6	8.7
Index:	34.6	30.3	37.8
Percent at or above Level III:	26.9%	18.2%	33.3%
Number/Percent of Scores at			
Level I:	8 30.8%	4 36.4%	4 26.7%
Level II:	11 42.3%	5 45.5%	6 40.0%
Level III:	5 19.2%	1 9.1%	4 26.7%
Level IV:	2 7.7%	1 9.1%	1 6.7%

* Summary statistics are not shown if the "All" N-count is less than five. Male and Female summary statistics are not shown if either "Male" or "Female" N-counts are less than two.

The ABCs for High Schools: An Example

The reports that appear on the next three pages are mock-ups of ABCs High School Reports. These do not contain actual data from any high school in North Carolina for the 1997-98 accountability year. These reports have been developed for training purposes only. To assist in interpreting these reports, the following information may prove useful:

Report # 1: Applying the High School Model to the 1997- 98 year

In this report, three years of a high school's data are given: 1996, 1997, and 1998. The report is similar in format to the High School Model Worksheet for Computing Composite Gain, but is different in a few respects. In this report:

- *A subject column shows the EOC subject, and in the next column, Levels indicate Achievement Levels I through IV.*
- *Three columns show the high school's historic data for 1996, 1997, and 1998. Included are numbers and percentages of students in each achievement level, and the EOC Index for each subject.*
- *The Baseline (average of the indexes of the first two years) is shown for each EOC.*
- *The Gain column indicates the difference between the 1998 index and the baseline for each EOC component.*
- *Recentered Gain shows the gain minus 0.1 (the minimum gain to attain expected growth).*
- *The Std Dev (Exp) column gives the standard deviations of change for Expected Gain (these are constants).*
- *The Std Dev (Exem) column gives the standard deviations of change for exemplary gain. These are constant and are different from the standard deviations of change for expected gain.*
- *The Std Gain (Exp) and (Exem) columns show the standard gains for expected and exemplary for each EOC component. Recentered gains are divided by the respective standard deviations of change. The total composite gain (expected), a sum of each EOC standard expected gain, appears at the bottom of the Std Gain (Exp) column. "Met Expected" appears below the composite if the value of the composite is zero or greater. "Not Met" appears when the composite is negative. The composite gain (exemplary) appears at the bottom of the Std Gain (Exem) column.*

Report #2: Stacking bar graph showing the Achievement Levels

This report shows a high school's historic data as stacked bar graphs. Each EOC test has three bars, representing three years of data: the two previous years and current year. The Achievement Levels are indicated by patterns on the bar, as shown in the key. Percentages of students at each level are noted on the segments of each bar.

Report #3: Change in Index by Subject graph

This report is a graph that shows the EOC Indexes for each test for three previous years. Using the 1998 year as the current year, arrows below the graph indicate whether each EOC index increased over baseline, decreased over baseline, or remained approximately the same (within 0.5).

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Comparison of 1996, 1997, and 1998 End-of-Course Test Performance

Meeting expected and exemplary gain: applying the high school model to the 1997 school year using available data

Subject		1996 EOC #	1996 EOC %	1996 EOC I	1997 EOC #	1997 EOC %	1997 EOC I	1998 EOC #	1998 EOC %	1998 EOC I	Baseline (96-97)	Gain	Recentered Gain	Std Dev (Exp)	Std Gain (Exp)	Std Dev (Exem)	Std Gain (Exem)
Algebra I **	Level I:	2	2.4	55.3	36	38.7	29.7	25	30.1	27.7	42.5	-14.8	-14.9	7.4	-2.0	7.3	-2.4
	II:	28	34.1		32	34.4		48	57.8								
	III:	48	58.5		24	25.8		9	10.8								
	IV:	4	4.9		1	1.1		1	1.2								
Biology	Level I:	18	19.8	44.7	12	13.3	48.9	14	14.6	46.5	46.8	-0.3	-0.4	6.4	-0.1	6.3	-0.5
	II:	32	35.2		31	34.4		37	38.5								
	III:	33	36.3		40	44.4		36	39.6								
	IV:	8	8.8		7	7.8		7	7.3								
ELP	Level I:	13	11.3	53.0	22	18.6	44.6	4	25.0	39.6	48.8	-9.3	-9.4	7.9	-1.2	7.8	-1.5
	II:	40	34.8		48	40.7		6	37.5								
	III:	43	37.4		34	28.8		5	31.2								
	IV:	19	16.5		14	11.9		1	6.2								
English I	Level I:	11	10.5	50.5	31	24.8	41.6	19	16.2	46.2	46.0	0.1	0.0	5.6	0.0	5.5	-0.5
	II:	41	39.0		42	33.6		46	39.3								
	III:	41	39.0		42	33.6		40	34.2								
	IV:	12	11.4		10	8.0		12	10.3								
English II	Level I:	29	32.2	34.4	20	17.7	43.1	46	39.0	31.4	38.8	-7.4	-7.5	7.6	-1.0	7.5	-1.4
	II:	32	35.6		48	42.5		37	31.4								
	III:	26	28.9		37	32.7		31	26.3								
	IV:	3	3.3		8	7.1		4	3.4								
US History	Level I:	19	22.9	38.6	16	20.8	39.4	23	27.4	35.3	39.0	-3.7	-3.8	5.7	-0.7	5.6	-1.2
	II:	38	45.8		38	49.4		35	41.7								
	III:	20	24.1		16	20.8		24	28.6								
	IV:	6	7.2		7	9.1		2	2.4								
Reading 10th Comp.		Not part of the Accountability Model until 1999															
Math 10th Comp.		Not part of the Accountability Model until 1999															
College Tech Prep		Not Available at this time															
Total Composite Gain:															-4.9		-7.5
															NOT MET		NOT MET

= Number of Students in each Achievement Level; % = Percent of Students in each Achievement Level; I = End-of-Course Index

** Algebra I is based on grades 9-12 only

Accountability Division/Reporting Section

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Explanatory Note: This report was produced for training purposes only. These are not actual data; they do not reflect performance of any North Carolina high school for this accountability year. "Low-performing" schools will be designated by the State Board of Education at the August Board meeting, based upon the collection and analysis of the 1997-98 data which are to be submitted to DPI by June 30, 1998.

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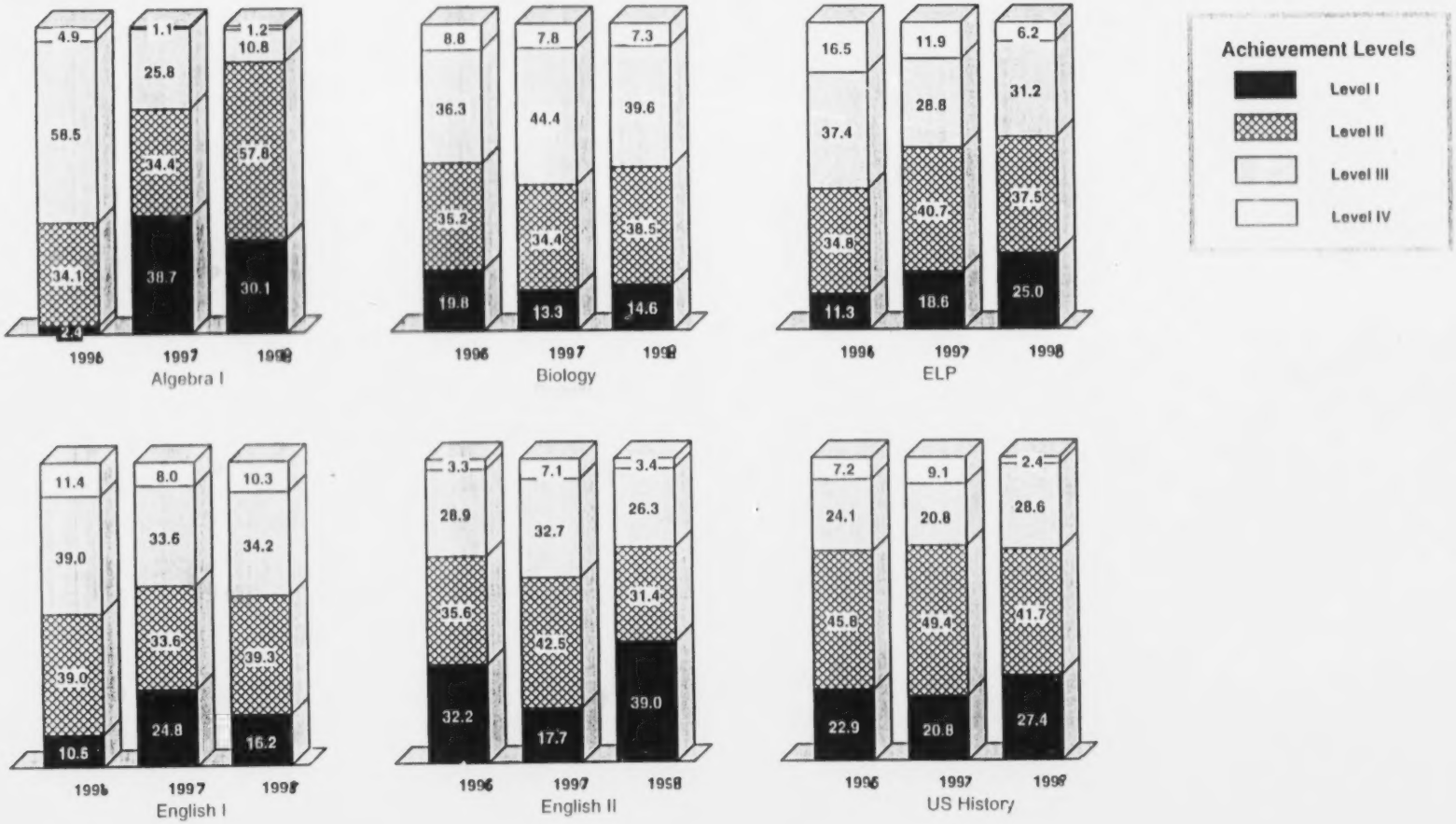
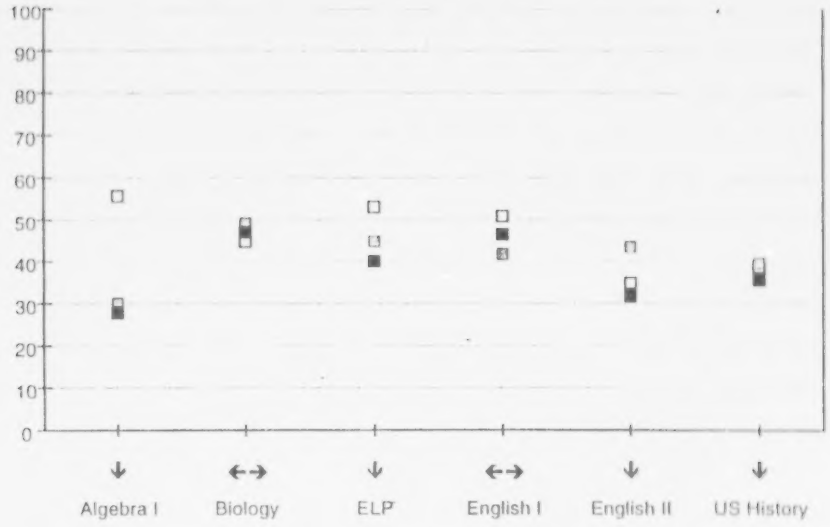
Percentage of Students at Each Achievement Level



Explanatory Note: This report was produced for training purposes only. These are not actual data; they do not reflect performance of any North Carolina high school for this accountability year. "Low-performing" schools will be designated by the State Board of Education at the August Board meeting, based upon the collection and analysis of the 1997-98 data which are to be submitted to DPI by June 30, 1998.

Change in Index by Academic Subject



1996 Index
1997 Index
1998 Index
Increase in 1998 Index over Baseline
Decrease in 1998 Index over Baseline
Baseline and 1998 Index are approximately the same (within 0.5)

Explanatory Note: This report was produced for training purposes only. These are not actual data; they do not reflect performance of any North Carolina high school for this accountability year. "Low-performing" schools will be designated by the State Board of Education at the August Board meeting, based upon the collection and analysis of the 1997-98 data which are to be submitted to DPI by June 30, 1998.

Research and Development

for

School Improvement

Effective Schooling Practices: A Research Synthesis

1995 Update

Northwest Regional Educational Laboratory
Portland, Oregon
(503) 275-9500

Onward to Excellence

Effective Schooling Practices: A Research Synthesis 1995 Update

Kathleen Cotton

Introduction

This is the third edition of a research synthesis document that was first published by the Northwest Regional Educational Laboratory (NWREL) in 1984 and updated in 1990. This edition reflects educational research literature published within the past five years, together with inquiries into topical areas not investigated previously. Like its predecessors, this synthesis cites classroom, school, and district practices that research has shown to foster positive student achievement, attitudes, and social behavior.

The 1984 synthesis featured findings from the now-classic "school effectiveness" research conducted in the 1970s and early 1980s. That research studied effective and ineffective schools and classrooms with similar student populations and identified key differences in their organization, management, curriculum, and instruction.

The 1990 synthesis update retained that information, adding refinements to those earlier findings and results from other areas of investigation, such as questioning strategies, high-needs populations, and professional development for teachers.

This 1995 update augments previous work by identifying (1) additional findings in familiar topical areas and (2) findings on topics of more recent research interest. Among these newer areas of focus are:

- Curriculum integration
- Alternative assessment
- School-based management
- Prevention of substance abuse, dropping out, and social disruption
- Social and academic resiliency
- Higher-level thinking skills
- Attitudes and skills for workplace readiness
- Intercultural relations and multicultural learning.

Inevitably, the revision process also required the deletion of many bibliographic citations that appeared in the earlier versions in order to create space for newer entries. In culling the bibliography, we have attempted to retain classic and seminal reports, while removing many older, less rigorous, redundant, or difficult-to-find items.

The result of this work is that the assertions made in this synthesis are supported by more than 1,000 of the highest-quality and most useful studies and summaries available.

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School, Community and Professional Development Program

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History

Originally, the synthesis was intended primarily as a support piece for schools receiving training in NWREL's *Onward to Excellence* (OTE) school improvement process. Staff of these schools—now numbering approximately 2,000 across the U.S.—have used the synthesis to identify research-based practices that relate to the improvement goals they have set. They then plan, implement, and monitor the use of these practices, drawing upon additional research and the experience of others who have pursued similar goals.

Today, OTE is the best-known and one of the most highly regarded approaches to school improvement in the nation. OTE's success is due largely to (1) its insistence that educational improvement efforts be research based and (2) its provision of a resource—this synthesis and its predecessors—that makes it feasible for busy school personnel to access and use research.

The widespread, successful use of the syntheses in OTE schools is, of course, very gratifying. Its use, however, has expanded considerably beyond this initial application. The synthesis is also disseminated through NWREL's School Improvement Research Series (SIRS), a growing collection of research summaries and related articles distributed on either a single-purchase or subscription basis. As this edition of the synthesis goes to press, the combined sales of the first two editions total nearly 100,000 copies.

Participants in NWREL's more recently developed district-level strategic improvement process, *Creating the Future*, are also making use of the synthesis, a practice that can be expected to increase with the growth of that program. Large but undocumented numbers of complimentary copies have been distributed to NWREL's clients and colleagues over the years. And finally, the synthesis has been available since 1990 through the Educational Resources Information Center (ERIC) system (ED 347 613).

The Effective Schooling Research

The evidence that supports the assertions made in this synthesis come from several different kinds of research investigations. They include:

- **School effects research**: Studies of whole schools undertaken to identify schoolwide practices that help students learn
- **Teacher effects research**: Studies of teachers and students in the classroom to discover effective practices
- **Research on instructional leadership**: Studies of principals and other building leaders to determine what they do to support teaching and learning
- **Curriculum alignment and curriculum integration research**: Examinations of alternative methods of organizing and managing curriculum to determine effective approaches
- **Program coupling research**: Inquiries into the interrelationships among practices used at the district, school building and classroom levels
- **Research on educational change**: Studies to identify conditions and practices that promote significant, durable change in educational programs.

Taken as a whole, the findings from research in these areas provide a broad and integrated picture of effective schooling practices. However, while the research in some areas (teacher effects, for example) is plentiful, of high quality, and quite consistent, the research base in other areas (such as program coupling) is smaller and more difficult to link to particular student outcomes. Consequently, the assertions about effective schooling made in this document cannot be entirely conclusive. Still, the evidence in support of these assertions is strong and

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continues to become stronger as contemporary researchers add to and confirm the findings of earlier research.

How to Use the Synthesis

This research synthesis describes characteristics and practices identified by research as associated with improvements in student performance. Findings are cited within three sections, each focused on one level of organization: the classroom, the school, and the district. Groups of practices derived from the research have been organized into *practice clusters* (such as "Teachers Use a Preplanned Curriculum to Guide Instruction") and then into *cluster groupings* (such as "Instruction" and "Assessment").

At the end of each practice cluster are lists of sources from the research base which support the practices cited in that cluster. While these are not inclusive of all the reports reviewed in that topic area, they are of high quality, representative of the research base, relatively easy to retrieve, and therefore likely to be useful to those wanting to pursue a given topic in more detail. Full citations may be found in the bibliography at the end of this publication.

The findings summarized here will be of interest to persons exploring or involved in school improvement and restructuring efforts. The synthesis can stimulate discussion of instructional issues, guide the development of appropriate local improvements, and aid in decision making as school improvements take place. When integrated into a locally determined plan for action, these practices can be of significant assistance in the improvement of schools.

A word of caution: This booklet cannot legitimately be utilized as a checklist or instrument for evaluating the performance of individual teachers or principals, nor should it be used as a blueprint for local school improvement. It is not a simple recipe for school improvement, nor is it, in and of itself, a staff development program or a program for supervision.

The experience of those involved in OTE and other school improvement efforts does demonstrate, however, that the findings presented here are useful in helping to develop and actualize school improvement projects that bring about real change for the better. Research and experience both offer the clear and optimistic message that schools do make a difference and that, with an appropriate concentration of will and effort, teachers and administrators can substantially influence student success.

We suggest that readers review the research findings reported here and, based on local decisions and needs, use these findings to formulate processes that can lead to attainment of school goals.

How to Access the Research

Use of the research synthesis frequently leads readers to want to acquire materials identified in the bibliography. While we at NWREL are not able to provide these documents, we have taken steps to make it easier for users to locate them.

This edition of the synthesis provides the most complete bibliographic information possible for each source cited, including journal volumes, numbers, months and years. ED numbers are provided for documents available through the ERIC system, and most hard-to-find or "fugitive" citations have been deleted. Finally, those items cited at the end of each practice cluster in the synthesis text have been selected partly for ease of access, and most can readily be retrieved at a county, university, or other well-stocked library.

Journal Articles and Books. These libraries, for example, should have many of the educational journals in which the articles in this bibliography appear. Local library staff can assist users to locate articles from these journals. Articles from journals the local library does not have can often be retrieved through interlibrary loan. Likewise, books cited in the bibliography can either be borrowed from the library or, for users who wish to acquire their own copies, can generally be found,

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along with price and ordering information. in *Books in Print*. School-based users are encouraged to contact their instructional media specialists for assistance in retrieving resources.

ERIC Documents. Citations that conclude with an ED number—the letters "ED" followed by six digits—in parentheses refer to materials that have been photocopied and miniaturized on microfiche by ERIC staff. Local librarians can help readers locate the nearest ERIC microfiche collection.

Most documents can also be ordered, in either microfiche or hard-copy form, from: ERIC Document Reproduction Service, DynTel Corporation, 7420 Fullerton Road, Suite 110, Springfield, VA 22153-2852, 1-800-443-ERIC. Costs: Paper copy—$3.85 for each 25 pages or part thereof; Microfiche (each containing 96 pages)—$0.25 each.

SIRS Materials. Some citations in this bibliography refer to "Close-Ups" and "Topical Syntheses" developed at NWREL. These articles are from NWREL's School Improvement Research Series (SIRS), of which this synthesis is also a part. Hard copy of the different "series" of SIRS materials are available for purchase from NWREL's Document Reproduction Service (contact information below), and some of them are also in the ERIC system. Finally, they are available on the Internet via the NWREL Gopher at

```
gopher://gopher.nwrel.org/11/
programs/scpd/sirs
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or on the World Wide Web at

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http://www.nwrel.org/scpd/
sirshome.html
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Additions to the SIRS materials on the Internet will be made as new documents are published.

Further Information and Ordering

NWREL's School, Community and Professional Development Program (SCPD) has developed the *Onward to Excellence* process referenced above for use by local schools in applying effective schooling research results to meet school improvement goals. *Creating the Future*, a program for district-level strategic improvement, is also being used profitably in the Northwest region and elsewhere to improve student performance. For further information about these programs or about the School Improvement Research Series, contact:

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Section V:

Resources

for

Information Gathering

and

Analysis

Resources for Information Gathering and Analysis

General

Sanders, James R. (1992). **Evaluating School Programs**. California: Sage Publications.

Surveys, Questionnaires, and Interviews

Berdie, D., & Anderson, J. (1974). **Questionnaires**. Metuchen, NJ: Scarecrow.

Borg, W. R., & Gall, M.D. (1989). **Educational Research**. New York: Longman.

Dillman, D. A. (1978). **Mail and Telephone Surveys: The Total Design Method.** New York: John Wiley.

Fowler, F.J., Jr. (1989). **Survey Research Methods** (2nd Edition). Newbury Park, California: Sage.

Fowler, F.J., Jr. & Mangione, T. W. (1990). **Standardized Survey Interviewing: Minimizing Interviewer-related Error**. Newbury Park, California: Sage.

Gorden, R.L. (1980). **Interviewing: Strategy, Techniques, and Tactics.** Homewood, Illinois: Dorsey.

Testing

Bloom, B., Hastings, J.T., & Madaus, G.F. (1971). **Handbook on Formative and Summative Evaluation of Student Learning**. New York: McGraw-Hill.

Hopkins, K.D., & Stanley, J.C. (1981). **Educational and Psychological Measurement and Evaluation**. Englewood Cliffs, NJ: Prentice-Hall.

Resources for Information Gathering and Analysis (continued)

Attitude Scales

Robinson, J. P. & Shaver, P.R. (1973). **Measures of Political Attitudes**. Ann Arbor: Institute for Social Research, University of Michigan.

Robinson, J. P. & Shaver, P. R. (1973). **Measures of Social Psychological Attitudes.** Ann Arbor: Institute for Social Research, University of Michigan.

Shaw, M. R. & Wright, J. M. (1967). **Scales for the Measurement of Attitudes**. New York: McGraw-Hill.

Unobtrusive Measures

Webb, E.J., Campbell, D. T., Schwartz, R.D., & Sechrest, L. (1966). **Unobtrusive Measures: Nonreactive Research in the Social Sciences**. Chicago: Rand McNally.

Document Analysis

Budd, R. W., et. al. (1967). **Content Analysis of Communication**. New York: Macmillan.

Guba, E.G., & Lincoln, Y.S. (1981). **Effective Evaluation**. San Francisco: Jossey-Bass.

Holsti, O. (1969). **Content Analysis for the Social Sciences and Humanities**. Reading, MA: Addison-Wesley.

Data Analysis

Bernhardt, Victoria L. (1998). **Data Analysis for Comprehensive Schoolwide Improvement**. Larchmont, NY: Eye on Education.

Purpose of Research Module

School improvement should be based on empirical evidence of effective practices to the extent possible. Information about what works and what does not should guide our decisions and design work in the school reform process. While research may not clearly answer all of our questions, it can inform many of our decisions.

There are many sources of existing research, from the Education Resources Information Clearing House (ERIC) to specific journals in the library. Often, reviewing and synthesizing research in a given area is a large task - one that individual schools may not have the time or knowledge base to do well. This module is intended to provide a start for Technical Assistance Partners in finding the best research for decisions that a school is trying to make.

Section I contains a research synthesis completed every few years by the Northwest Regional Educational Laboratory. This document is in the public domain and was last updated in 1995. This comprehensive synthesis provides research related to 1) classroom characteristics and practices, 2) school characteristics and practices, and 3) district characteristics and practices. The specific references are provided in Bibliography.

Section II contains information on additional resources that can be searched for specific questions or issues of concern to a school or district.

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1. CLASSROOM CHARACTERISTICS AND PRACTICES

Teachers and students work together over time to extend and refine each learner's knowledge and skills. Through careful preplanning, effective classroom management and instruction, positive teacher-student interactions, attention to equity issues, and regular assessment, teachers and students can achieve success.

1.1 PLANNING AND LEARNING GOALS

1.1.1 Teachers Use a Preplanned Curriculum to Guide Instruction.

Teachers:

a. Develop and prioritize learning goals and objectives based on district and building guidelines, sequence them to facilitate student learning, and organize them into units or lessons.
b. Establish timelines for unit or lesson objectives so they can use the calendar for instructional planning.
c. Identify instructional resources and teaching activities, match them to objectives and student developmental levels, and record them in lesson plans.
d. Identify alternative resources and activities, especially for priority objectives.
e. Review resources and teaching activities for content and appropriateness and modify them as needed to increase their effectiveness in helping students learn.
f. Arrange daily, weekly, monthly, and yearly activities on the calendar to assure that resources are available and instructional time is used wisely.

Behr and Bachelor (1981); Brophy and Good (1986); Byra and Coulon (1994); Callaway (1988); Denham and Lieberman (1980); Edmonds (1979a,b); Glatthorn (1993); Kallison (1986); Leithwood and Montgomery (1982, 1985); Mortimore, et al. (1988); Mortimore and Sammons (1987); Rosenshine (1976, 1983); Rosenshine and Stevens (1986); Sammons, Hillman, and Mortimore (1994); Sarason (1971); Shann (1990); Stallings (1985a, 1986); Venezky and Winfield (1979)

1.1.2 Teachers Provide Instruction that Integrates Traditional School Subjects, As Appropriate.

Teachers:

a. Use thematic units as the organizing principles for instruction in agreed-upon areas.
b. Include student input when determining themes around which to organize instruction.
c. Engage students in projects requiring knowledge and skill across several traditional content areas.
d. Make use of other resources, including hands-on materials, in addition to textbooks.
e. Organize themselves into teams to plan and deliver instruction.
f. Use performance assessments that allow students to demonstrate knowledge and skills from several traditional subject-matter areas.

Aschbacher (1991); Brophy and Alleman (1991); Friend (1985); Greene (1991); Henderson and Landesman (1992); Hough (1994); Ladewig (1987); Lake (1994); Lee and Smith (1993); Levitan (1991); MacIver (1990); Mansfield (1989); Martinez (1992); Meckler (1992); Smith, Johnson, and Rhodes (1993); Vars (1987); Vye (1990); Willett (1992); Williams, D. (1991)

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1.2 CLASSROOM MANAGEMENT AND ORGANIZATION

1.2.1 Teachers Form Instructional Groups That Fit Students' Academic and Affective Needs.

Teachers:

a. Use whole group instruction when introducing new concepts and skills.
b. Form smaller groups as needed to make sure all students learn thoroughly. They place students according to individual achievement levels for short-term learning activities; they avoid underplacement.
c. Monitor their instructional approaches, so that students in lower groups still receive high-quality instruction.
d. Review and adjust groups often, moving students when achievement levels change.
e. Form small groups for instruction and practice in the use of higher-order thinking skills.
f. Make use of heterogeneous cooperative learning groups, structuring these so that there are both group rewards and individual accountability.
g. Set up peer tutoring and peer evaluation groups to use time effectively and to ensure that students receive the assistance they need to learn successfully.
h. Ensure that learning groups exhibit gender, cultural, ability-disability, and socioeconomic balance.

Bossert (1985, 1988a); Calfee and Brown (1979); Cohen, E. C. (1986); DiPardo and Freedman (1988); Fantuzzo, et al. (1989); Fielding and Pearson (1994); Garcia, E. E. (1990); Glatthorn (1989); Hallinan (1984); Hawkins, Doueck, and Lishner (1988); Johnson, Johnson, and Scott (1978); Johnson, et al. (1981); Katstra, Tollefson, and Gilbert (1987); Lazarowitz, et al. (1988); Lumpkins, Parker, and Hall (1991); Madden, et al. (1993); Medley (1979); Rosenshine (1979, 1983); Rosenshine and Stevens (1986); Shann (1990); Sindelar, et al. (1984); Slavin (1987a, 1988a, 1989a, 1989-90, 1991, 1994); Sorensen and Hallinan (1986); Stallings (1985); Webb (1980)

1.2.2 Teachers Make Efficient Use of Learning Time.

Teachers:

a. Allocate time to different content areas based on district and school goals.
b. Keep noninstructional time to a minimum by beginning and ending lessons on time, keeping transition times short, and managing classrooms so as to minimize disruptive behavior.
c. Set and maintain a brisk pace for instruction that remains consistent with thorough learning. They introduce new objectives quickly, and provide clear start and stop cues to pace lessons according to specific time targets.
d Ask focused questions, provide immediate feedback and correctives, and engage students in discussion and review of learning material.
e. Maintain awareness of the rest of the class when working with individuals or small groups and take action as necessary to keep all students on task.
f. Present learning activities at a level that is neither too easy nor too difficult for the majority of students, making adaptations to serve the needs of faster and slower learners.
g. Keep seatwork activities productive through careful preparation, active supervision, and provision of assistance to students in such a way that others are not disturbed.
h. Encourage students to pace themselves. If students do not finish during class, teachers request that they work on lessons before or after school, during lunch or at other times so they keep up with what is going on in class.
i. Work with slower learners to reduce the amount of time needed for learning, e.g., by teaching them effective study skills, mnemonic devices, etc.
j. Give short homework assignments to elementary students to build good study habits and longer (45-120-minute) assignments to secondary students to reinforce

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learning. They check homework for completion and to diagnose learning needs, but do not generally assign grades.

Anderson, L. W. (1980, 1985); Berliner (1979); Bielefeldt (1990); Brookover and Lezotte (1979); Brophy (1986a,b); Brophy and Good (1986); Brown and Saks (1986); Butler (1987); Cooper (1989); Denham and Lieberman (1980); Evertson (1985, 1989); Evertson and Harris (1992); Gall, et al. (1990); Gettinger (1989); Good (1984); Hawley, et al. (1984); Helmke and Schrader (1988); Karweit (1984, 1985); Knorr (1981); Kulik and Kulik (1988); Levine and Lezotte (1990); McGarity and Butts (1984); Rosenshine (1978, 1979, 1983); Sammons, Hillman, and Mortimore (1994); Slavin (1994a); Strother (1985); Stallings (1980); Teddlie, Kirby, and Stringfield (1989); Walberg (1988); Walberg, et al. (1985); Wang, Haertel, and Walberg (1993-1994); Wyne and Stuck (1979)

1.2.3 Teachers Establish Smooth, Efficient Classroom Routines.

Teachers:

a. Plan rules and procedures before the school year begins and present them to students during the first few days of school.
b. Begin class quickly and purposefully, with assignments, activities, materials and supplies ready for students when they arrive.
c. Require students to bring the materials they need to class each day and assign storage space as needed.
d. Establish routines for handling administrative matters quickly and efficiently, with minimum disruption of instructional time.
e. Make smooth, rapid transitions between activities throughout the class period or school day.
f. Circulate around the room during seatwork activities, keeping students on task and providing help as needed.
g. Conduct periodic review of classroom routines and revise them as needed.

Allen, J. D. (1986); Anderson, L. M., et al. (1980); Armor, et al. (1976); Bain, Lintz, and Word (1989); Bielefeldt (1990); Brophy (1979; 1986); Brophy (1983a); Brophy and Good (1986); Brown, McIntyre, and McAlpine (1988); Doyle (1986); Edmonds (1979a); Emmer, et al. (1980a,b, 1982); Evertson (1982a,b, 1985); Evertson and Harris (1992); Evertson, et al. (1982, 1985); Gersten and Carnine (1986); Good and Brophy (1986); Hawkins, Doueck, and Lishner (1988); Hawley, et al. (1984); Kounin (1977); Leinhardt, Weidman, and Hammond (1987); Medley (1979); Rosenshine (1983); Rosenshine and Stevens (1986); Sanford, Emmer, and Clements (1983); Sanford and Evertson (1981); Wang, Haertel, and Walberg (1993-1994)

1.2.4 Teachers Set Clear Standards for Classroom Behavior and Apply Them Fairly and Consistently.

Teachers:

a. Set standards which are consistent with or identical to the building code of conduct.
b. Let students know that there are high standards for behavior in the classroom, and explain rules, discipline procedures, and consequences clearly.
c. Provide written behavior standards and teach and review them from the beginning of the year or the start of new courses.
d. Establish rules that are clear and specific; they avoid vague or unenforceable rules such as "be in the right place at the right time."
e. Provide considerable reteaching and practice of classroom rules and procedures for children in grades K-3.
f. Involve older students in helping to establish standards and sanctions.
g. Apply consistent, equitable discipline for all students, making certain that sanctions are clearly linked to students' inappropriate behavior.
h. Teach and reinforce positive, prosocial behaviors and skills, including self-control skills, especially with students who have a history of behavior problems.
i. Stop disruptions quickly, taking care to avoid disrupting the whole class.

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j. Focus on students' inappropriate behavior when taking disciplinary action—not on their personalities or histories.
k. Handle most disciplinary matters in the classroom, keeping referrals to administrators to a minimum.
l. Participate in training activities to improve classroom management skills.

Allen, J. D. (1986); Anderson, L. M. (1980); Bain, Lintz, and Word (1989); Bielefeldt (1990); Brophy (1979, 1983a, 1986a); Brophy and Good (1986); CEDaR/PDK (1985); Cotton (1990b); Doyle (1986); Emmer and Evertson (1981a,b); Emmer and Aussiker (1989); Emmer, et al. (1982); Evertson (1985, 1989); Evertson and Harris (1992); Gettinger (1988); Good and Brophy (1986); Gottfredson, Gottfredson, and Hybl (1993); Hawkins, Doueck, and Lishner (1988); Kounin (1977); Leming (1993); Mayer (1993); Medley (1978); Render, Padilla, and Krank (1989); Rutter, et al. (1979); Sanford and Evertson (1981); Solomon, et al. (1988); Teddlie, Kirby, and Stringfield (1989); Vincenzi and Ayrer (1985)

1.3 INSTRUCTION

1.3.1 Teachers Carefully Orient Students to Lessons.

Teachers:
a. Communicate enthusiasm for learning.
b. Help students get ready to learn. They explain lesson objectives in simple, everyday language and refer to them throughout lessons to maintain focus.
c. Post or hand out learning objectives to help students keep a sense of direction and check periodically to assure that objectives are understood.
d. Explain the relationship of a current lesson to previous study, calling attention to key concepts or skills previously covered.
e. Arouse students' interest and curiosity about the lesson content by relating it to things of personal relevance to them.
f. Challenge and inspire students to learn, particularly at the start of difficult lessons. They make certain that students know in advance what's expected and are ready to learn.
g. Use techniques such as advance organizers, study questions, and prediction to prepare students for learning activities.
h. Make students aware that they are expected to contribute to classroom discussions and other participatory activities.

Block and Burns (1976); Bloom (1976); Brophy (1987); Brophy and Good (1986); Evertson (1986); Gersten and Carnine (1986); Good (1984); Good and Grouws (1979 a,b); Kooy (1992); Lumpkins, Parker, and Hall (1991); McGinley and Denner (1985); Mitchell (1987); Porter and Brophy (1988); Rosenshine (1976, 1983); Rosenshine and Stevens (1986); Slavin (1994); Snapp and Glover (1990); Stahl and Clark (1987); Stallings (1985c); Streeter (1986); Tomic (1989); Weade and Evertson (1988)

1.3.2 Teachers Provide Clear and Focused Instruction.

Teachers:
a. Review lesson activities, give clear written and verbal directions, emphasize key points and instructions, and check students' understanding.
b. Give lectures and demonstrations in a clear and focused manner, avoiding digressions.
c. Take note of learning style differences among students, and, when feasible, identify and use learning strategies and materials that are appropriate to different styles.
d. Give students plenty of opportunity for guided and independent practice with new concepts and skills.
e. Provide instruction in strategies for learning and remembering/applying what they have learned, as well as instruction in test-taking skills.
f. Use validated strategies to develop students' higher-level thinking skills.

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g. Select problems and other academic tasks that are well matched to lesson content so student success rate is high. They also provide varied and challenging seatwork activities.
h. Provide computer-assisted instructional activities which supplement and are integrated with teacher-directed learning.

Bain, Lintz, and Word (1989); Bennett (1991); Brophy (1979); Brophy and Good (1986); Chilcoat (1989); Corno and Snow (1986); Crawford, et al. (1975); Dunn (1984); Evertson (1989); Gall, et al. (1990); Gersten, et al. (1984); Gersten and Carnine (1986); Gleason, Carnine, and Boriero (1990); Good and Grouws (1977; 1979a,b); Haller, Child, and Walberg (1988); Kulik and Kulik (1987); Levine (1982); Levine and Stark (1982); Madden, et al. (1993); Medley (1978); Metcalf and Cruickshank (1991); Mevarech and Rich (1985); Nickerson (1988); Okey (1985); Paradise and Block (1984); Paris, Oka, and DeBritto (1983); Porter and Brophy (1988); Rosenshine (1979, 1983); Rosenshine and Stevens (1986); Rutter, et al. (1979); Samson (1985); Saracho (1984); Scruggs, White, and Bennion (1986); Slavin (1994a); Snyder, et al. (1991); Stallings (1985a); Stennett (1985); Wang, Haertel, and Walberg (1993-1994); Waxman, et al. (1985); Weade and Evertson (1988); Weinstein and Meyer (1986); Weinstein, C. E., et al. (1988-1989); Woodward, Carnine, and Gersten (1988)

1.3.3 Teachers Routinely Provide Students Feedback and Reinforcement Regarding Their Learning Progress.

Teachers:
a. Give students immediate feedback on their in-class responses and written assignments to help them understand and correct errors.
b. Acknowledge correct responses during recitations and on assignments and tests.
c. Relate the specific feedback they give to unit goals or overall course goals.
d. Give praise and other verbal reinforcements for correct answers and for progress in relation to past performance; however, teachers use praise sparingly and avoid the use of unmerited or random praise.
e. Make use of peer evaluation techniques (e.g., in written composition) as a means of providing feedback and guidance to students.
f. Provide computer-assisted instructional activities that give students immediate feedback regarding their learning performance.
g. Assign homework regularly to students in grade four and above and see that it is corrected and returned promptly—either in class by the students or by the teacher.
h. Train students to provide each other feedback and reinforcement during peer tutoring activities.

Brophy (1980, 1987); Brophy and Good (1986); Broughton (1978); Cannella (1986); Cohen, Kulik, and Kulik (1982); DiPardo and Freedman (1988); Gettinger (1983); Gorrell and Keel (1986); Gottfried and Gottfried (1991); Hawkins, Doueck, and Lishner (1988); Hawley, et al. (1984); Kastra, Tollefson, and Gilbert (1987); Kearns (1988); Kulik and Kulik (1987, 1988); Lysakowski and Walberg (1981); Madden, et al. (1993); Mortimore, et al. (1988); Page (1992); Porter and Brophy (1988); Rosenshine and Stevens (1986); Rupe (1986); Sammons, Hillman, and Mortimore (1994); Schunk (1983, 1984); Schunk and Swartz (1993); Slavin (1979a,b); Stennett (1985); Stevens (1985); Teddlie, Kirby, and Stringfield (1989); Tenenbaum and Goldring (1989)

1.3.4 Teachers Review and Reteach as Necessary to Help All Students Master Learning Material.

Teachers:
a. Introduce new learning material as quickly as possible at the beginning of the year or course, with a minimum of review or reteaching of previous content. They review key concepts and skills thoroughly but quickly.
b. Use different materials and examples for reteaching than those used for initial instruction; reteaching is more than a "rehash" of previously taught lessons.
c. Reteach priority lesson content until students show they've learned it.

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d. Provide regular, focused reviews of key concepts and skills throughout the year to check on and strengthen student understanding.
e. Select computer-assisted instructional activities that include review and reinforcement components.
f. Address learning style differences during review and reteaching.

Bain, Lintz, and Word (1989); Block (1983); Block and Burns (1976); Block, Efthim, and Burns (1989); Bloom (1976); Brophy (1986b, 1987, 1988b); Brophy and Good (1986); Burns (1979); Dalton and Hannafin (1988); Darter and Phelps (1990); Dewalt and Rodwell (1988); Dillashaw and Okey (1983); Gillingham and Guthrie (1987); Good (1984); Guskey and Gates (1986); Johnson, G., Gersten, and Carnine (1987); Kinzie, Sullivan, and Berdel (1988); Rosenshine (1976, 1979, 1983); Rosenshine and Stevens (1986)

1.3.5 Teachers Use Validated Strategies to Help Build Students' Critical and Creative Thinking Skills.

Teachers:
a. Help students to understand that critical and creative thinking are important for success in our rapidly changing world.
b. Provide instruction in study skills, such as paraphrasing, outlining, developing cognitive maps, and using advance organizers.
c. Teach strategies for problem solving, decision making, exploration, classification, hypothesizing and provide students opportunities to practice and refine these skills.
d. Work with older students to develop metacognitive skills, so that they can examine their own thinking patterns and learn to make changes as needed.
e. Ask higher-order questions and give students generous amounts of time to respond.
f. Use instructional strategies such as probing, redirection, and reinforcement to improve the quality of student responses.
g. Incorporate computer-assisted instructional activities into building thinking skills such as verbal analogy, logical reasoning, induction/deduction, elaboration, and integration.
h. Maintain a supportive classroom environment in which students feel safe experimenting with new ideas and approaches.
i. May use specific thinking skill development programs and/or infuse thinking skill instruction into content-area lessons, since both approaches have been shown to be effective.

Bangert-Drowns and Bankert (1990); Barba and Merchant (1990); Baum (1990); Bransford, et al. (1986); Crump, Schlichter, and Palk (1988); Freseman (1990); Gall, et al. (1990); Haller, Child, and Walberg (1988); Hansler (1985); Herrnstein, et al. (1986); Horton and Ryba (1986); Hudgins and Edelman (1986); Kagan, D. M. (1988); Matthews (1989); MCREL (1985); Norris (1985); Pearson (1982); Pogrow (1988); Riding and Powell (1985, 1987); Ristow (1988); Robinson (1987); Snapp and Glover (1990); Sternberg and Bhana (1986); Tenenbaum (1986); Wong (1985)

1.3.6 Teachers Use Effective Questioning Techniques to Build Basic and Higher-Level Skills.

Teachers:
a. Make use of classroom questioning to engage student interaction and to monitor student understanding.
b. Structure questions so as to focus students' attention on key elements in the lesson.
c. Ask a combination of lower-cognitive (fact and recall) and higher-cognitive (open-ended and interpretive) questions to check students' understanding and stimulate their thinking during classroom recitations.
d. Ask lower-cognitive questions that most students will be able to answer correctly when helping students to acquire factual knowledge.

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e. Ask a majority of higher-cognitive questions (50 percent or more) of students above the primary grades during classroom recitations.
f. Allow generous amounts of "wait-time" when questioning students—at least three seconds for lower-cognitive questions and more for higher-cognitive ones.
g. Continue to interact with students whose initial responses are inaccurate or incomplete, probing their understanding and helping them to produce better answers.
h. Make certain that both faster and slower learners have opportunities to respond to higher cognitive questions and are given sufficient wait-time.

Atwood and Wilen (1991); Brophy (1986b, 1987); Brophy and Good (1986); Ciardiello (1986); Cotton (1989a); Gall (1984); Good (1984); Honea (1982); Hoxmeier (1986); Johnston, Markle, and Haley-Oliphant (1987); Redfield and Rousseau (1981); Riley (1986); Samson, et al. (1987); Slavin (1994a); Stevens (1985); Swift and Gooding (1983); Swift, Swift, and Gooding (1984); Tobin and Capie (1980, 1981); Winne (1979)

1.3.7 Teachers Integrate Workplace Readiness Skills into Content-Area Instruction.

Teachers:
a. Communicate to students of all age/grade levels that developing employability skills is important for everyone.
b. Focus on developing the higher-order skills required in the modern workplace—problem-solving and decision-making skills, learning strategies, and creative thinking.
c. Provide learning activities to foster the development of qualities such as dependability, positive attitude toward work, conscientiousness, cooperation, adaptability, and self-discipline.
d. Provide classroom environments for secondary students that replicate key features of real work settings.
e. Assign tasks like those carried out by people in real work settings.
f. Function as facilitators and coaches rather than lecturers or order givers, giving older students much of the responsibility for their own learning.
g. Base learning activities on students' learning needs and styles, rather than adhering rigidly to textbooks or lesson plans.
h. Teach the value of employability skills inductively, by having students experience how group projects are affected by the presence or absence of these skills.
i. Use work-based learning experiences to reinforce basic skills.
j. Select workplace problems to illustrate how basic academic skills are applied in real-world settings.
k. Demonstrate the relevance of learning material by showing how it relates to other courses and to workplace applications.
l. Organize the secondary curriculum around broad occupational themes/categories.

Beach (1982); Berryman (1988, 1991); Cotton (1993a); Evans and Burck (1992); Foster, D. E., Engels, and Wilson (1986); Gregson (1992); Gregson and Bettis (1991); Gregson and Trawinski (1991); Hamilton (1990); Hull (1993); Meyer and Newman (1988); Parnell (1994); Stasz (1990, 1993); Stemmer, Brown, and Smith (1992); Stone, et al. (1990); Stone-Ewing (1995); Voc. Ed. Weekly (1993); Wentling (1987)

1.4 TEACHER-STUDENT INTERACTIONS

1.4.1 Teachers Hold High Expectations for Student Learning.

Teachers:
a. Set high standards for learning and let students know they are all expected to meet them. They assure that standards are both challenging and attainable.
b. Expect *all* students to perform at a level needed to be successful at the next level of learning; they do not accept that some students will fail.

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c. Hold students accountable for completing assignments, turning in work, and participating in classroom discussions.
d. Provide the time, instruction, and encouragement necessary to help lower achievers perform at acceptable levels. This includes giving them learning material as interesting and varied as that provided for other students, and communicating warmth and affection to them.
e. Monitor their own beliefs and behavior to make certain that high expectations are communicated to all students, regardless of gender, socioeconomic status, race, or other personal characteristics. Teachers avoid unreliable sources of information about students' learning potential, such as the biases of other teachers.
f. Emphasize that different students are good at different things and reinforce this by having them view each other's products and performances.

Bain, Lintz, and Word (1989); Bamburg (1994); Berliner (1979, 1985); Block (1983); Block and Burns (1976); Bloom (1976); Brookover, et al. (1979); Brophy (1983, 1987); Brophy and Good (1986); Cooper and Good (1983); Cooper and Tom (1984); Cotton (1989c); Edmonds (1979a,b); Gersten, Carnine, and Zoref (1986); Good (1982, 1987); Hawley, et al. (1984); Keneal, et al. (1991); Marshall and Weinstein (1985); Mortimore, et al. (1988); Paredes and Frazer (1992); Patriarca and Kragt (1986); Porter and Brophy (1988); Pratton and Hales (1986); Rosenshine (1983); Sammons, Hillman, and Mortimore (1994); Saracho (1991); Slavin (1994a); Stevens (1985); Teddlie, Kirby, and Stringfield (1989); Woolfolk and Brooks (1985)

1.4.2 Teachers Provide Incentives, Recognition, and Rewards to Promote Excellence.

Teachers:
a. Define excellence by objective standards, not by peer comparison. They establish systems for consistent recognition of students for academic achievement and excellent behavior.
b. Relate recognition and rewards to specific student achievements and use them judiciously. As with praise, teachers are careful not to use unmerited or random rewards in an attempt to control students' behavior.
c. Provide incentives and rewards appropriate to the developmental level of students, including symbolic, token, tangible, or activity rewards.
d. Make certain that all students know what they need to do to earn recognition and rewards. Rewards should be appealing to students, while remaining commensurate with their achievements, i.e., not too lavish.
e. Present some rewards publicly and others privately; some immediately and some delayed to teach persistence.
f. Make some rewards available to students on an individual basis, while allowing others to earned by groups of students—as in some cooperative learning structures.

Bain, Lintz, and Word (1989); Brophy (1980, 1986a,b, 1987, 1988b); Brophy and Good (1986); Cameron and Pierce (1994); Canella (1986); Emmer and Evertson (1980, 1981a); Evertson (1981); Evertson, Anderson, and Anderson (1980); Gettinger (1983); Good (1984); Gottfried and Gottfried (1991); Hawley, et al. (1984); Lysakowski and Walberg (1981); Morgan (1984); Rosenshine and Stevens (1986); Rosswork (1977); Rutter, et al. (1979); Slavin (1980, 1984, 1988a, 1989a, 1991, 1994a)

1.4.3 Teachers Interact with Students in Positive, Caring Ways.

Teachers:
a. Pay attention to student interests, problems, and accomplishments in social interactions both in and out of the classroom.
b. Encourage student effort, focusing on the positive aspects of students' answers, products, and behavior.

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c. Communicate interest and caring to students both verbally and through such nonverbal means as giving undivided attention, maintaining eye contact, smiling, and nodding.
d. Encourage students to develop a sense of responsibility and self-reliance. They give older students, in particular, opportunities to take responsibility for school-related activities and to participate in making decisions about important school issues.
e. Share anecdotes and incidents from their experience as appropriate to build rapport and understanding with students.

Agne, Greenwood, and Miller (1994); Allen, J. D. (1986); Anderson, C. S. (1985); Bain, Lintz, and Word (1989); Bain and Jacobs (1990); Cooper and Good (1983); Cooper and Tom (1984); Cotton (1992a); Doyle (1986); Edmonds (1979a,b); Emmer and Evertson (1980, 1981a); Glatthorn (1989); Good (1987); Good and Brophy (1984); Gottfried and Gottfried (1991); Hawkins, Doueck, and Lishner (1988); Kearns (1988); Kohn (1991); Marshall and Weinstein (1985); McDevitt, Lennon, and Kopriva (1991); Midgley, Feldlaufer, and Eccles (1989); Mills (1989); Mortimore and Sammons (1987); Mortimore, et al. (1988); Pecukonis (1990); Rutter, et al. (1979); Taylor, S. E. (1986-87); Teddlie, Kirby, and Stringfield (1989); Wang, Haertel, and Walberg (1993-1994); Weinstein and Marshall (1984); Woolfolk and Brooks (1985)

1.5 EQUITY

1.5.1 Teachers Give High-Needs Students the Extra Time and Instruction They Need to Succeed.

Teachers:
a. Use approaches such as tutoring, continuous progress and cooperative learning with young children to reduce the incidence of later academic difficulties.
b. Monitor student learning carefully to maintain awareness of students having frequent academic difficulty; they note problems and arrange for help as needed.
c. Communicate high learning and behavioral expectations to high-needs students and hold them accountable for meeting classroom standards.
d. Provide high-needs students with instruction in study skills and in the kinds of learning strategies used by successful students (e.g., summarizing, questioning, predicting, etc.).
e. Give high-needs students additional learning time for priority objectives whenever possible; students spend this time in interactive learning activities with teachers, aides, or peer tutors.

Anderson, L. W. (1983); Bamburg (1994); Brophy (1986b, 1988); Brown, B. W., and Saks (1986); Cooper, Findlay, and Good (1982); Cooper and Tom (1984); Cotton (1989c, 1991b); Crawford (1989); Druian and Butler (1987); Gall, et al. (1990); Gettinger (1984, 1989); Good (1987); Griswold, Cotton, and Hansen (1986); Lumpkins, Parker, and Hall (1991); Madden, et al. (1993); Sammons, Hillman, and Mortimore (1994); Seifert and Beck (1984); Slavin (1980, 1984, 1987b, 1988a,b, 1989a); Slavin, Karweit, and Madden (1989); Slavin, Karweit, and Wasik (1994); Slavin and Madden (1989a,b); Stein, Leinhardt, and Bickel (1989); Waxman, et al. (1985)

1.5.2 Teachers Support the Social and Academic Resiliency of High-Needs Students.

Teachers:
a. Communicate warmth and encouragement to high-needs students, comparing their learning with the students' own past performance rather than making comparisons with other students.
b. Work together to assure that each high-needs student has an ongoing supportive relationship with at least one school staff member.
c. Create opportunities for these students to develop supportive peer relationships and serve as peer resources to one another through activities such as youth service, cooperative learning, and peer and cross-age tutoring.

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d. Teach problem-solving skills and provide opportunities for students to practice real-life application of these skills.
e. Help each student to develop an internal locus of control by calling attention to the relationship between individual effort and results.
f. Encourage family members and other key persons in the lives of high-needs students to continually express high expectations for their behavior and school achievement.
g. Encourage key people in these students' lives to involve them in making real and meaningful contributions to the family and community.

Benard (1993a,b); Glaser, et al. (1992); Grossman, et al. (1992); Kalkowski (1995); Linquanti (1992); Luthar (1991); Midgley, Feldlaufer, and Eccles (1988)

1.5.3 Teachers Promote Respect and Empathy Among Students of Different Socioeconomic and Cultural Backgrounds.

Teachers:
a. Work to ensure equity in learning opportunity and achievement for all socioeconomic and cultural groups.
b. Communicate positive regard for students of different groups by holding high expectations for all students and treating them equitably.
c. Provide multicultural education activities as an integral part of classroom learning.
d. Make use of culturally heterogeneous cooperative learning structures in which there is individual accountability and group recognition.
e. Provide learning activities designed to reduce prejudice and increase empathy among cultures, races, genders, socioeconomic levels, and other groups. These include use of print, video, and theatrical media which dramatize the unfairness of prejudice and present various groups in a positive light.
f. Teach critical thinking skills in relation to intercultural issues, e.g., they make students aware that prejudicial thinking is replete with fallacies of reasoning, such as overgeneralization.
g. Contribute to the development of students' self-esteem by treating them with warmth and respect and offering them opportunities for academic success.
h. Avoid using practices known to be detrimental to intercultural relations, such as long-term ability grouping and attempting to change attitudes through exhortation.

Allport (1954); Byrnes (1988); Cotton (1991a, 1992b); Davis (1985); DeVries, Edwards, and Slavin (1978); Gabelko (1988); Gallo (1989); Gimmestad and DeChiara (1982); Hart and Lumsden (1989); Mabbutt (1991); McGregor (1993); Moore (1988); Oakes (1985); Pate (1981, 1988); Roberts (1982); Rogers, Miller, and Hennigan (1981); Ruiz (1982); Slavin (1979a, 1985, 1987, 1988b, 1989a, 1990); Swadener (1988); Walberg and Genova (1983); Warring, Johnson, and Maruyama (1985)

1.6 ASSESSMENT

1.6.1 Teachers Monitor Student Progress Closely.

Teachers:
a. Monitor student learning regularly, both formally and informally.
b. Focus their monitoring efforts on early identification and referral of young children with learning difficulties.
c. Require that students be accountable for their academic work.
d. Carefully align classroom assessments of student performance with the written curriculum and actual instruction.
e. Are knowledgeable about assessment methodology and use this knowledge to select or prepare valid, reliable assessments.

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f. Use routine assessment procedures to check student progress. These include conducting recitations, circulating and checking students' work during seatwork periods, assigning and checking homework, conducting periodic reviews with students, administering tests, and reviewing student performance data.
g. Review assessment instruments and methods for cultural, gender, and other bias and make changes as needed.
h. Use assessment results not only to evaluate students, but also for instructional diagnosis, to find out if teaching methods are working, and to determine whether classroom conditions support student learning.
i. Set grading scales and mastery standards high to promote excellence.
j. Encourage parents to keep track of student progress.

Bain, Lintz, and Word (1989); Block, Efthim, and Burns (1989); Bloom (1974); Brookover (1979); Brophy and Good (1986); Cohen, S. A. (1994); Cohen, S. A., et al. (1989); Costa and Kallick (1992); Dillashaw and Okey (1983); Engman (1989); Evertson, et al. (1982, 1986); Fuchs and Fuchs (1986); Fuchs, Fuchs, and Tindall (1986); Good and Grouws (1979); Howell and McColhum-Gahley (1986); Mortimore, et al. (1988); Natriello (1987); Porter and Brophy (1988); Rosenshine (1983); Rosenshine and Stevens (1986); Sammons, Hillman, and Mortimore (1994); Slavin, Karweit, and Madden (1989); Stiggins (1991); Tomic (1989); Walberg, Paschal, and Weinstein (1985)

1.6.2 Teachers Make Use of Alternative Assessments as well as Traditional Tests.

Teachers:
a. Participate in staff development activities that prepare them to develop rubrics, establish standards, and design tasks.
b. Communicate to students and parents that assessments involving performances and products are the best preparation for life outside of school.
c. Begin by using alternative assessments on a small scale. They recognize that the best assessments are developed over time and with repeated use.
d. Plan assessments as they plan instruction—not as an afterthought.
e. Develop assessments that have instructional value as well as assessing student learning.
f. Teach children the scoring systems that will be used to evaluate their work and allow them to practice using these systems for self- and peer assessment.
g. Secure input from older students for establishing performance criteria.
h. Involve students in peer assessment activities, such as peer editing.
i. Collect assessments used profitably by others and use or adapt these for their own classrooms.

Arter, et al. (1994); Belk and Calais (1993); Fuchs and Deno (1994); Goldberg (1995); Herman (1992); Lazzaro (1995); McTighe and Ferrara (1994); Schnitzer (1993); Shavelson and Baxter (1992); Sperling (1994); Stiggins (1994)

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2. SCHOOL CHARACTERISTICS AND PRACTICES

The qualities of the school as a whole can either enhance or detract from the learning environment. Key factors in support of student success include efficient planning and clear goals, validated organization and management practices, strong leadership and continuous improvement, positive staff and student interactions, a commitment to educational equity, regular assessment, support programs, and positive relationships with parents and community members.

2.1 PLANNING AND LEARNING GOALS

2.1.1 Everyone in the School Community Emphasizes the Importance of Learning.

Administrators and teachers:

a. Have high expectations for student achievement; all students are expected to work hard to attain priority learning goals.
b. Continually express expectations for improvement of the instructional program.
c. Emphasize academic achievement when setting goals and school policies.
d. Develop mission statements, slogans, mottos, and displays that underscore the school's academic goals.
e. Focus on student learning considerations as the most important criteria for making decisions.

Andrews and Soder (1987); Armor, et al. (1976); Austin and Holowenzak (1985); Bamburg (1994); Bamburg and Andrews (1987, 1991); Berliner (1979); Brookover and Lezotte (1979); Edmonds (1979a); Edmonds and Frederiksen (1979); Fullan (1994); Good (1987); Good and Brophy (1986); Hoy (1990); Keedy (1992); Larsen (1987); Levine (1990); Lezotte and Bancroft (1985); Little (1982); Madden, Lawson, and Sweet (1976); Murphy and Hallinger (1988); Paredes and Frazer (1992); Pavan and Reid (1994); Peng (1987); Purkey and Smith (1983); Rosenholtz (1985, 1989a,b); Rutter, et al. (1979); Sammons, Hillman, and Mortimore (1994); Shann (1990); Wang, Haertel, and Walberg (1993-1994); Weber (1971); Wilson, B. L., and Corcoran (1988)

2.1.2 Administrators and Teachers Base Curriculum Planning on Clear Goals and Objectives.

Administrators and teachers:

a. Define learning goals and objectives clearly and display them prominently. They use building curriculum—and district curriculum resources, when available—for instructional planning.
b. Establish clear relationships among learning goals, instructional activities, and student assessments and display these in written form.
c. Engage in collaborative curriculum planning and decision making, focusing on building continuity across grade levels and courses; teachers know where they fit in the curriculum.
d. Work with each other, the students, and the community to promote understanding of the curriculum and the priorities within it.
e. Conduct periodic curriculum alignment and review efforts to ensure congruence with school and district goals.

Behr and Bachelor (1981); Berliner (1985); Block (1983); Bossert (1985); Cohen, S. A. (1994); Corcoran (1985); Deal and Peterson (1993); DeBevoise (1984); Edmonds (1979a); Engman (1989); Everson, et al. (1986); Good and Brophy (1986); Griswold, Cotton, and Hansen (1986); Hawley, et al. (1984); Hord (1992a); Larsen (1987); Leithwood and Montgomery (1982, 1985); Levine and Lezotte (1990); Lezotte and Bancroft (1985); Peng (1987); Rosenholtz (1985, 1989a,b); Sammons, Hillman, and Mortimore (1994); Sarason (1971); Schau and Scott (1984); Scott (1984); Stevens (1985); Venezky and Winfield (1979); Vincenzi and Ayrer (1985)

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2.1.3 Administrators and Teachers Integrate the Curriculum, as Appropriate.

Administrators and teachers:

a. Explore the feasibility of integrating traditional subject-area content around broad themes, and identify areas where this approach is appropriate.
b. Arrange time for teacher teams to work on integrating curriculum, plan instructional strategies, and develop assessments.
c. Make other resources available for use in integrated curriculum units in addition to textbooks.
d. Pursue curriculum integration gradually, so that staff can make adjustments, gain feelings of ownership, and evaluate the success of each effort.
e. As with any innovation, inform parents and community of the research and experience supporting curriculum integration and engage their support.

Aschbacher (1991); Brophy and Alleman (1991); Caine (1991); Friend (1985); Gehrke (1991); Greene (1991); Henderson and Landesman (1992); Herman (1992); Hough (1994); Ladewig (1987); Lake (1994); Levitan (1991); Martinez (1992); McCarthy and Still (1993); Meckler (1992); Slavin, et al. (1993); Vars (1987); Vye (1990); Willett (1992); Williams, D. (1991)

2.1.4 Administrators and Teachers Provide Computer Technology for Instructional Support and Workplace Simulation.

Administrators and teachers:

a. Receive training to enable them to use computer-assisted instruction effectively.
b. Use computer-assisted instruction as a supplement to—not a replacement for—traditional, teacher-directed instruction.
c. Provide computer activities that simulate workplace conditions and tasks to build employability skills for all students.
d. Make use of computers and word processing software to foster the development of writing skills.
e. Provide high-interest drill-and-practice programs to support learning, especially with students requiring skill remediation.
f. Provide computer-assisted instructional activities for chronically misbehaving students and students with negative attitudes toward traditional learning methods.

Bangert-Drowns (1985); Bangert-Drowns, Kulik, and Kulik (1985); Bahr and Rieth (1989); Bennett (1991); Bialo and Sivin (1990); Braun (1990); Capper and Copple (1985); Darter and Phelps (1990); Dickinson (1986); Ehman and Glen (1987); Fletcher, Hawley, and Piele (1990); Gore, et al. (1989); Keuper (1985); Kinnaman (1990); Kulik and Kulik (1987, 1991); Liao (1992); Mevarech and Rich (1985); Robertson (1987); Roblyer (1989); Rodrigues and Rodrigues (1986); Rupe (1986); Ryan (1991); Stennet (1985); Woodward, Carnine, and Gersten (1988)

2.1.5 Administrators and Teachers Include Workplace Preparation Among School Goals.

Administrators and teachers:

a. Recognize the importance of developing employability skills in all students, regardless of their postsecondary plans.
b. Include age-appropriate activities to develop workplace readiness skills at all levels, K-12.
c. Ensure that students develop the higher-order skills in demand in the modern workplace—problem-solving and decision-making skills, learning strategies, and creative thinking.
d. Give special emphasis to the development of qualities required for workplace success—dependability, positive attitude toward work, conscientiousness, cooperation, adaptability, and self-discipline.

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e. Provide, for secondary students, learning environments that replicate key features of real work settings.
f. Give older students tasks which approximate those performed by people in real work settings.
g. Ensure that teachers have considerable autonomy in establishing learning activities, classroom design, and instructional approaches.
h. Assist secondary students in preparing and updating their written career plans to identify their future educational and occupational directions.
I. Help students to reflect on their school- and community-based learning experiences.

Beach (1982); Berryman (1988; 1991); Carnevale, Gainer, and Meltzer (1988); Cotton (1993a); Foster, Engels, and Wilson (1986); Gregson (1992); Gregson and Bettis (1991); Gregson and Trawinski (1991); Lankard (1990); Packer (1992); Parnell (1994); Poole (1985); SCANS Report (1991, 1992); Stacey (1994); Starr (1990, 1993)

2.2 SCHOOL MANAGEMENT AND ORGANIZATION

2.2.1 A School-Based Management Team Makes Many of the Decisions Regarding School Operations.

Team members:
a. Have the support of the district to make school-level decisions, provided these are in keeping with legal mandates and district goals.
b. Are broadly representative, including supportive administrators, teachers, other school staff, parent and community members, and students.
c. Communicate to constituents what school-based management is and secure their support.
d. Receive district-sponsored training in legal requirements, school operations, and group process skills.
e. Assume decision-making responsibility gradually, i.e., in one governance area (curriculum, instruction, budget, etc.) at a time.
f. Function as a true decision-making body rather than merely an advisory one, e.g., the principal does not have veto power over team decisions.
g. Involve teacher participants in decision making about their areas of expertise (curriculum and instruction) and avoid involving them in relatively trivial administrative matters.
h. Receive recognition for the increased effort that school-based management requires of participants.

Arterbury and Hord (1991); Bachus (1992); Caldwell and Wood (1988); Cistone, Fernandez, and Tornillo (1989); Conley and Bacharach (1990); David (1989); Hord (1992b); Jackson and Crawford (1991); Levine (1991); Levine and Eubanks (1992); Louis and King (1993); Malen, Ogawa, and Kranz (1990a,b, 1991); Mojkowski and Fleming (1988); Odden and Wohlstetter (1995); Short and Greer (1993); Taylor and Levine (1991); White, P. A. (1989); Wohlstetter, Smyer, and Mohrman (1994)

2.2.2 Administrators and Teachers Group Students in Ways That Promote Effective Instruction.

Administrators and teachers:
a. Place students in heterogeneous groups for required subjects and courses; they avoid underplacement of students.
b. Make use of instructional aides and grouping strategies to keep the student/adult ratio low, especially during instruction aimed at priority objectives.
c. Provide in-class instruction in small groups for low achievers whenever possible to promote academic success and avoid the stigma often associated with pull-out classes.

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d. Make certain that ability groups, when used, are short term and that student placement is reviewed frequently for appropriateness.
e. Avoid the practice of long-term academic tracking, which research has shown to have negative effects on the achievement and attitudes of the majority of students.
f. Are aware of the many social and academic benefits of multiage (nongraded) grouping, especially for primary-level children, and at least explore the possibility of implementing this structure.

Abadzi (1984, 1985); Affleck, et al. (1988); Brookover and Lezotte (1979); Brown, K. S., and Martin (1989); California SDE (1977); Cohen, E. C. (1986); Cotton (1993b); Eames (1989); Evertson (1992); Gamoran (1987, 1992); Gamoran and Berends (1987); Garcia (1990); Gutierrez and Slavin (1992); Haller (1985); Hallinan (1984); Hawley, et al. (1984); Levine and Lezotte (1990); Miller, B. A. (1990); Oakes (1985, 1986a,b); Oakes, et al. (1990); Pavan (1992a,b); Peterson, P. L., Wilkinson, and Hallinan (1984); Schneider (1989); Slavin (1987a,b, 1993, 1994b); Slavin, et al. (1993); Sorenson and Hallinan (1986); Webb (1980); Winsler and Espinosa (1990)

2.2.3 Administrators and Teachers Assure That School Time is Use for Learning.

Administrators and teachers:
a. Schedule school events so as to avoid disruption of learning time.
b. Emphasize the importance of protecting learning time when interacting with each other and with parents and students.
c. Allocate school time for various subjects based on school and district goals and monitor time use to make certain allocations are followed.
d. Organize the school calendar to provide maximum learning time. They review potential new instructional programs and school procedures for their likely impact on learning time prior to adoption.
e. Keep unassigned time and time spent on noninstructional activities to a minimum during the school day; they keep loudspeaker announcements and other administrative intrusions brief and schedule them for minimal interference with instruction.
f. Ensure that the school day, classes, and other activities start and end on time.
g. Participate in inservice to improve their skills in making appropriate time allocations, managing students' behavior, and increasing student time on task.
h. Keep student pull-outs from regular classes to a minimum for either academic or nonacademic purposes, and monitor the amount of pull-out activity.
i. Provide extra learning time outside of regular school hours for students who need or want it.
j. Establish and enforce firm policies regarding tardies, absenteeism, and appropriate classroom behavior to maximize instructional time.

Anderson, L. W. (1983); Berliner and Cassanova (1989); Brookover and Lezotte (1979); Brophy (1988); Denham and Lieberman (1980); Evertson (1985); Fisher, et al. (1980); Fisher and Berliner (1985); Karweit (1984, 1985); Larsen (1987); Levine and Lezotte (1990); Mazzarella (1984); Peng (1987); Sanford, Emmer, and Clements (1983); Sanford and Evertson (1983); Slavin and Madden (1989b); Stallings (1980, 1985b); Strother (1985); Wiley and Harnischfeger (1974)

2.2.4 Administrators and Teachers Establish and Enforce Clear, Consistent Discipline Policies.

Administrators and teachers:
a. Provide a written code of conduct specifying acceptable student behavior, discipline procedures, and consequences. They make certain that students, parents and all staff members know the code by providing initial trainings and periodic reviews of key features.
b. Work to create a warm, supportive school environment. The principal, in particular, is visible and personable in interactions with staff and students.

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c. Administer discipline procedures quickly following infractions, making sure that disciplinary action is consistent with the code and that all students are treated equitably. They take action on absenteeism and tardiness quickly—normally within a day.
d. Deliver sanctions that are commensurate with the offense committed.
e. Make certain that students understand why they are being disciplined, in terms of the code of conduct.
f. Carry out discipline in a neutral, matter-of-fact way, focusing on the student's behavior rather than personality or history.
g. Develop and use methods for providing positive reinforcement for appropriate behavior, particularly for those students with a history of behavior problems.
h. Assist students with behavior problems to develop social interaction, self-control, and anger management skills.
i. Avoid expulsions and out-of-school suspensions whenever possible, making use instead of in-school suspension accompanied by assistance and support.
j. Engage in problem solving with each other and with students to address discipline issues, focusing on causes rather than symptoms.
k. Strike agreements with parents about ways to reinforce school disciplinary procedures at home.
l. Adapt any commercial discipline programs used so that they match local circumstances and needs.
m. Develop and implement, as needed, projects to prevent violence and gang activity.
n. Engage in training activities to improve skills in prevention and remediation of violence and other discipline problems.

Bain, H. P., and Jacobs (1990); Block (1983); Boyd (1992); Brookover and Lezotte (1979); Cantrell and Cantrell (1993); Corcoran (1985); Cotton (1990b); Doyle (1989); Duke (1989); Edmonds (1979a,b, 1982); Edmonds and Frederiksen (1979); Fenley, et al. (1993); Good and Brophy (1986); Gottfredson, D. C. (1987); Gottfredson, D. C., Gottfredson, and Hybl (1993); Hawley, et al. (1984); Lasley and Wayson (1982); Leach and Byrne (1986); Leming (1993); Levine and Eubanks (1989); Levine and Lezotte (1990); Madden, Lawson, and Sweet (1976); Render, Padilla, and Krank (1989); Rutter, et al. (1979); Sammons, Hillman, and Mortimore (1994); Short (1988); Staub (1990); Wayson and Lasley (1984); Weber (1971); Wilson and Corcoran (1988); Wilson-Brewer, et al. (1991)

2.2.5 Administrators and Teachers Provide a Pleasant Physical Environment for Teaching and Learning.

Administrators and teachers:

a. Arrange for physical facilities to be kept clean and reasonably attractive; damage is repaired immediately.
b. Arrange for hallways and classrooms to be cheerfully decorated with student products, seasonal artwork, posters depicting positive values and school spirit, etc.
c. Provide classroom, meeting, and storage space sufficient for teaching and learning, conferences, inservice activities, etc.
d. Secure staff and student input periodically on facilities needs—repair, replacement, refurbishing, temperature, cleanliness, etc.
e. Subdivide large facilities into smaller sections to facilitate communication and reduce isolation.

Anderson, C. S. (1985); Boyd (1992); Darder and Upshur (1992); Glatthorn (1989); Good and Brophy (1986); Hawley, et al. (1984); Hess (1987); Levine and Lezotte (1990); Little (1982); Peng (1987); Rutter, et al. (1979); Sammons, Hillman, and Mortimore (1994); Shann (1990); Teddlie, Kirby, and Stringfield (1989); Wilson, B. L., and Corcoran (1988)

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2.3 LEADERSHIP AND SCHOOL IMPROVEMENT

2.3.1 Leaders Undertake School Restructuring Efforts as Needed to Attain Agreed-upon Goals for Students.

Administrators and other leaders:

a. Review school operations in light of agreed-upon goals for student performance.
b. Work with school-based management team members to identify any needed changes (in organization, curriculum, instruction, scheduling, etc.) to support attainment of goals for students.
c. Identify kinds of staff development needed to enable school leaders and other personnel to bring about desired changes.
d. Study restructuring efforts conducted elsewhere for ideas and approaches to use or adapt.
e. Consider school contextual factors when undertaking restructuring efforts—factors such as availability of resources, nature of incentives and disincentives, linkages within the school, school goals and priorities, factions and stresses among the staff, current instructional practices, and legacy of previous innovations.

Fortune, Williams, and White (1992); Fullan (1993); Lee and Smith (1993); Leithwood (1994); Lewis (1989); McCarthy and Still (1993); Murphy and Hallinger (1993); Prestine (1993); Prestine and Bowen (1993)

2.3.2 Strong Leadership Guides the Instructional Program.

Administrators and other instructional leaders:

a. Believe that all students can learn and that the school makes the difference between success and failure.
b. Emphasize learning as the most important reason for being in school; public speeches and writings emphasize the importance and value of high achievement.
c. Have a clear understanding of the school's mission and are able to state it in direct, concrete terms. They establish an instructional focus that unifies staff.
d. Seek, recruit and hire staff members who will support the school's mission and contribute to its effectiveness.
e. Know and can apply validated teaching and learning principles; they model effective teaching practices for staff as appropriate.
f. Know educational research, emphasize its importance, share it, and foster its use in problem solving.
g. Seek out innovative curricular programs, observe these, acquaint staff with them, and participate with staff in discussions about adopting or adapting them.
h. Set expectations for curriculum quality through the use of standards and guidelines. They periodically check the alignment of curriculum with instruction and assessment, establish curricular priorities, and monitor the implementation of curriculum.
i. Check student progress frequently, relying on explicit performance data. They make results public, and work with staff to set standards, use them as points of comparison, and address discrepancies.
j. Expect all staff to meet high instructional standards. They secure staff agreement on a schoolwide instructional model, make classroom visits to observe instruction, focus supervision activities on instructional improvement, and provide and monitor staff development activities.
k. Communicate the expectation that instructional programs will improve over time. They provide well-organized, systematic improvement strategies; give improvement activities high priority and visibility; and monitor implementation of new practices.

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l. Involve the full staff in planning implementation strategies. They set and enforce expectations for participation, ensure that others follow through on commitments, and rally support from the different constituencies in the school community.

Andrews and Soder (1987); Bamburg and Andrews (1991); Berman and McLaughlin (1979); Biester, et al. (1984); Bossert (1988b); Brookover (1979b, 1981); Brookover and Lezotte (1979); Brundage (1979); Cawelti (1987); Corbett, et al. (1984); Cohen, S. A. (1994); Cohen, S. A., et al. (1989); Crisci, et al. (1988); DeBevoise (1984); Druian and Butler (1987); Eberts and Stone (1988); Edmonds (1979a); Emrick (1977); Everson, et al. (1986); Fullan (1994); Glasman (1984); Good and Brophy (1986); Krug (1992); Hallinger, Bickman, and Davis (1989); Hawley, et al. (1984); Heck (1992); High and Achilles (1986); Larsen (1987); Leithwood and Montgomery (1982, 1985); Levine and Lezotte (1990); Little (1982); Louis and Miles (1989); Madden, Lawson, and Sweet (1976); Ogawa and Hart (1985); Pavan and Reid (1991, 1994); Purkey and Smith (1983); Rosenholtz (1987, 1989a,b); Sammons, Hillman, and Mortimore (1994); Schmitt, (1990); Venezky and Winfield (1979); Weber (1971)

2.3.3 Administrators and Other Leaders Continually Strive to Improve Instructional Effectiveness.

Administrators and other leaders:

a. Expect that educational programs will be changed so that they work better; they are never complacent about student achievement.
b. Direct school improvement efforts at clearly defined student achievement and/or social behavior goals; they secure schoolwide and community understanding and agreement about the purpose of improvement efforts.
c. Work with staff and school-based management groups to develop improvement goals based on review of school performance data; the goals then drive planning and implementation.
d. Review programs and practices shown to be effective in other school settings for their potential in helping to meet school needs.
e. Specify clearly the roles and responsibilities for the various aspects of the school improvement effort.
f. Check implementation carefully and frequently, note and publicize progress, and modify activities to make things work better.
g. Secure and encumber resources to support improvement activities, acquire resources from many sources including the community, and make resource allocations based on instructional priorities.
h. Renew or redirect the improvement focus as goals are achieved, report and celebrate success, and work with staff to establish new goals.
i. Allow adequate time for innovations to become integrated into the life of the school, and provide ongoing support to the full staff during the implementation process.
j. Provide periodic events to acknowledge and celebrate successes and to renew interest and energy for continued school improvement work.

Bamburg and Andrews (1989, 1991); Berman and McLaughlin (1979); Biester, et al. (1984); Bossert (1982, 1988); Boyd (1992); Brookover (1979b); Brundage (1979); David (1989); Deal and Peterson (1993); Edmonds (1979a, b); Emrick (1977); Everson, et al. (1986); Evertson (1986); Fullan (1992, 1994); Gall, et al. (1985); Good and Brophy (1985); Hallinger and Hausman (1993); Hawley, et al. (1984); Hord (1990, 1992); Hord and Huling-Austin (1986); Leithwood and Montgomery (1982); Levine (1990); Levine and Lezotte (1990); Little (1981, 1982); Louis and King (1993); Louis and Miles (1989); Madden, Lawson, and Sweet (1976); Murphy and Hallinger (1993); Oakes (1989); Pavan and Reid (1994); Purkey and Smith (1983); Rosenholtz (1985, 1989a,b); Sparks (1983, 1986); Stringfield and Teddlie (1988); Venezky and Winfield (1979); Weber (1971)

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2.3.4 Administrators and Other Leaders Engage Staff in Professional Development and Collegial Learning Activities.

Administrators and other leaders:

a. Make resources available to support ongoing programs of professional development for staff.
b. Set aside time for staff development activities, with at least part of that time made available during the regular work day.
c. Solicit and use staff input for the content of professional development activities; staff must feel the activities are relevant to them in order to benefit.
d. Provide activities that enhance teacher's capabilities in the major areas of technical repertoire, reflective practice, application of research, and collaborative skills.
e. Review research findings to identify effective staff development approaches for improving student performance.
f. Recognize that adults, like children, have different learning styles and provide diverse kinds of activities in response to these differences.
g. Arrange for staff involvement in group staff development activities at the building and district levels.
h. Make certain that skill-building activities are delivered over time, so that staff have the opportunity to practice their new learnings and report outcomes.
i. Build into staff development activities the opportunity for participants to share ideas and concerns regarding the use of new programs and practices.
j. Provide or arrange for ongoing technical assistance for school staff as they pursue school improvement activities.
k. Provide follow-up activities to ensure that newly acquired knowledge and skills are applied in the classroom.
l. Make resources available for staff to participate in individual professional development activities to enhance job-related knowledge and skills.
m. Create structures for staff members to learn from one another through peer observation/feedback and other collegial learning activities.
n. Work to establish a norm of collegiality; communicate the expectation that staff members will routinely share ideas and work together to improve the instructional program.

Bamburg and Andrews (1991); Bennett (1987); Block (1983); Boyd (1992); Butler (1989, 1992); Corcoran (1985); David (1989); Deal and Peterson (1993); Eubanks and Levine (1983); Everson, et al. (1986); Evertson (1986); Fullan (1992, 1994); Gage (1984); Gall, et al. (1984); Gall and Renchler (1985); Hawley, et al. (1984); Hord and Huling-Austin (1986); Joyce and Showers (1980); Joyce, Murphy, Showers, and Murphy (1989); Korinek, Schmid, and McAdams (1985); Levine, Levine, and Eubanks (1985); Levine and Lezotte (1990); Little (1982, 1986); Loucks-Horsley, et al. (1987); Louis and King (1993); Louis and Miles (1989); March, et al. (1993); Murphy and Hallinger (1993); Oakes (1989); Rosenholtz (1985, 1989a,b); Sammons, Hillman, and Mortimore (1994); Sparks (1983, 1986); Sparks and Loucks-Horsley (1990); Stevenson (1987); Wade (1985)

2.4 ADMINISTRATOR-TEACHER-STUDENT INTERACTIONS

2.4.1 Administrators Communicate High Expectations for Teacher Performance.

Administrators:

a. Promote a schoolwide belief that all students can be successful learners and work with teachers to meet the challenge of teaching them.
b. Negotiate individual professional growth goals with each teacher. They use written supervision and evaluation procedures, and all staff receive feedback on performance at least annually.
c. Use guidelines made in advance for conducting classroom observation. They provide feedback quickly, placing emphasis on improving instruction and increasing student achievement.

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d. Establish troubleshooting routines to help staff get quick resolution of instruction-related concerns.
e. Hold high expectations of themselves, assuming responsibility for student outcomes and making themselves visible and accessible to staff, students, parents, and community members.

Boyd (1992); Brookover and Lezotte (1979); DeBevoise (1984); Edmonds (1979a); Evertson (1986); Gaddy (1988); Gall and Renchler (1985); Good and Brophy (1986); Hallinger and Murphy (1985); Hord (1992a); Keedy (1992); Leithwood and Montgomery (1982, 1985); Levine (1990); Louis and King (1993); Louis and Miles (1989); Madden, Lawson, and Sweet (1976); Murphy and Hallinger (1985, 1988); Pavan and Reid (1991, 1994); Porter and Brophy (1988); Rosenholtz (1985, 1989a,b); Sparks (1983, 1986); Stevens (1985); Stringfield and Teddlie (1988); Tracz and Gibson (1986); Wade (1985)

2.4.2 Administrators and Other Leaders Provide Incentives, Recognition, and Rewards to Build Strong Staff Motivation.

Administrators and other leaders:
a. Recognize excellence in teaching, using school objectives and explicit criteria to make judgments. They include student achievement as an important criterion for determining teacher success.
b. Provide incentives and rewards to teachers who expand their knowledge and expertise by taking credit classes, applying for grants, or pursuing other professional development activities.
c. Conduct both formal and informal staff recognition, with at least some rewards made publicly.
d. Review incentive structures periodically to insure equity and effectiveness.

Anderson, C. S. (1985); Armor, et al. (1976); Block (1983); Boyd (1992); Brookover (1979); Brookover and Lezotte (1979); Fullan (1990, 1991); Good and Brophy (1986); Hawley, et al. (1984); Levine and Eubanks (1989); Levine and Lezotte (1990); Little (1982); Louis and Miles (1989); Mortimore, et al. (1988); Oakes (1989); Purkey and Smith (1983); Rosenholtz (1985, 1989a,b); Vincenzi and Ayrer (1985); Wade (1985); Wilson and Corcoran (1987)

2.4.3 Administrators and Teachers Communicate High Expectations to Students and Recognize Excellent Performance on a Schoolwide Basis.

Administrators and teachers:
a. Communicate warmth and caring to all students by learning their names and something about their strengths, interests, and needs.
b. Exhibit warmth and caring for each other in the presence of students to provide a model for them.
c. Communicate to students that they are important and valued through providing activities to develop good health habits and self-esteem, as well as prevention activities regarding dropping out, pregnancy, drugs, and violence.
d. Recognize and reward excellence in achievement and behavior. They ensure that requirements for awards are clear, that explicit procedures are used, and that evaluations are based on standards rather than comparisons with peers.
e. Provide opportunities for all students to excel in their areas of strength and receive recognition.
f. Match incentives and rewards to student developmental levels, ensuring that they are meaningful to recipients and structured to build persistence of effort and intrinsic motivation.
g. Allow older students considerable opportunity to manage their own learning and provide input into school policies and operations.

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Amabile, Hennessy, and Grossman (1987); Anderson, C. S. (1985); Bain and Jacobs (1990); Boyd (1992); Cantrell and Cantrell (1993); Cotton (1989c, 1990a, 1991b); DeBevoise (1984); Dryfoos (1990); Duke (1989); Fenley, et al. (1993); Gottfredson, D. C., and Gottfredson (1989); Gottfredson, D. C., Gottfredson, and Hybl (1993); Gottfried and Gottfried (1991); Kearns (1988); Keedy (1992); Levine and Eubanks (1989); Murphy and Hallinger (1985); Paredes and Frazer (1992); Sammons, Hillman, and Mortimore (1994); Shann (1990); Stiller and Ryan (1992); Wilson-Brewer, et al. (1991); Woods (1995)

2.5 EQUITY

2.5.1 Administrators and Teachers Provide Programs and Support to Help High-Needs Students Achieve School Success.

Administrators and teachers:

a. Focus on prevention of learning problems rather than remediation. Prevention programs featuring tutoring and/or small group instruction in reading are provided for young children.
b. Emphasize exploration, language development, and play in programs for pre-schoolers; kindergarten programs feature language and prereading skills using structured, comprehensive approaches.
c. Place high-needs students in comprehensive programs featuring detailed teachers' manuals, curriculum materials, lesson guides, and other support materials; they assure that these students are offered systematic alternatives to traditional instruction.
d. Place high-needs students in small classes (22 or fewer students) whenever possible.
e. Use proven methods such as continuous progress and cooperative learning to promote these students' learning success.
f. Carefully coordinate programs and activities for high-needs students (e.g., Chapter 1) with regular classroom activities.
g. Provide high-needs students instruction in test-taking skills and provide them activities to reduce test-taking anxiety.
h. Provide alternative learning arrangements which engage the special interests of older students (e.g., "school-within-a-school," off-campus activities).
i. Provide programs for older students which incorporate validated approaches such as peer, cross-age and volunteer tutoring and computer-assisted instruction.
j. Avoid retention in grade until all other alternatives have been considered and found inadequate.
k. Use pull-out programs judiciously, if at all, assuring that they are intensive, brief, and designed to catch students up with their peers quickly and return them to regular classrooms—not to support them indefinitely.
l. Use findings from ongoing monitoring efforts to adapt instruction to students' individual needs.

Allington and Johnston (1989); Bain and Jacobs (1990); Becker (1987); Brophy (1982); Chall and Snow (1988); Cotton (1989c); Crawford (1989); Cuban (1989); Druian and Butler (1987); Gall, et al. (1990); Glaser, et al. (1992); Gottfredson, G. D. (1988); Griswold, Cotton, and Hansen (1986); Honig (1989); Knapp, Turnbull, and Shields (1990); Levine and Eubanks (1989); Levine, Levine, and Eubanks (1987); Madden, et al. (1993); McPartland and Slavin (1990); NCRVE (1989); Nye, et al. (1992); Robinson (1990); Rowan and Guthrie (1989); Slavin (1987b, 1989a, 1994); Slavin and Madden (1989); Slavin, Karweit, and Madden (1989); Slavin, Karweit, and Wasik (1994); Stein, Leinhardt, and Bickel (1989); Wasik and Slavin (1994); Wheelock and Dorman (1988)

2.5.2 Administrators and Teachers Work to Achieve Equity in Learning Opportunities and Outcomes.

Administrators and teachers:

a. Make equitable distribution of achievement and other student outcomes a clearly stated and vigorously pursued school goal.

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b. Disaggregate achievement and behavioral data (by race, gender, socioeconomic level, etc.) to achieve clear understanding of how students of different groups are performing.
c. Gather information on ways to meet the needs of underserved groups.
d. Implement practices identified by research as promoting the achievement of high-needs groups (cited throughout this document).

Allen and Tadlock (1987); Arcia and Gallagher (1992); Baker (1992); Dreeben (1987); Epstein and Maciver (1992); Lee and Smith (1993); Marchant (1990); Martin-McCormick, et al. (1985); Moore (1988); Murphy and Hallinger (1989); Polanen (1991); Rumberger and Douglas (1992)

2.5.3 Administrators and Teachers Work to Establish and Maintain Positive Relationships Among People of Different Socioeconomic and Cultural Backgrounds.

Administrators and teachers:

a. Model harmonious intercultural relationships among themselves. Administrators attempt to recruit, hire, and retain staff representing different cultural backgrounds, especially in culturally diverse settings.
b. Promote activities which allow staff and students to benefit from contact with those who are socioeconomically or culturally different from themselves. These include extracurricular activities in which people have the opportunity to get to know one another as individuals and advance personal or group goals.
c. Communicate positive regard for students of different socioeconomic and cultural groups by holding high expectations for all students and treating them equitably.
d. Assure that efforts to increase intergroup harmony include attention to cross-gender relationships. They communicate high expectations to boys and girls taking nontraditional courses and take a firm stand against sexual harrassment.
e. Contribute to the development of students' self-esteem through treating them with warmth and respect and offering them opportunities for academic success.
f. Make it clear to students that demeaning statements, jokes, and graffiti related to gender, culture, race, and so on, are not acceptable.
g. Avoid the use of practices known to be detrimental to intergroup relations, e.g., academic tracking, communicating differential expectations of students based on cultural group, gender, or others factor unrelated to learning ability.
h. Review curricular materials periodically to assure freedom from gender, racial, ethnic, or other biases.

Burstein (1989); Byrnes (1988); Cotton (1991b, 1992a, 1993b); Foster, L. A. (1989); Gallo (1989); Garcia, J., Powell, and Sanchez (1990); Gay (1988); Hart and Lumsden (1989); Mabbutt (1991); Oakes (1985); Parrenas and Parrenas (1990); Pate (1981, 1988); Peck, C. A., Donaldson, and Pezzoli (1990); Rich (1987); Sammons, Hillman, and Mortimore (1994); Sanders and Wiseman (1990); Schwarzwald, Fridel, and Hoffman (1985); Shann (1990); Walsh (1988)

2.5.4 Administrators and Teachers Provide Multicultural Education Activities as an Integral Part of School Life.

Administrators and teachers:

a. Integrate multicultural activities fully into the school curriculum, rather than restricting them to one-shot or culture-of-the-month sessions.
b. Involve all students in multicultural activities—not just those students belonging to minority cultural groups.
c. Make multicultural activities a norm from the beginning of children's school experience.
d. Communicate respect for cultural plurality by recognizing and responding to culturally based differences in learning style.

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e. Access and use the training and materials needed to deliver high-quality multicultural education activities; administrators provide ongoing support.

Byrnes and Kiger (1987); Campbell and Farrell (1985); Cotton (1993b); Darder and Upshur (1992); Garcia, J., Powell, and Sanchez (1990); Gimmestad and DeChiara (1982); Gottfredson, Nettles, and McHugh (1992); Grant, Sleeter, and Anderson (1986); Hart and Lumsden (1989); Levine and Lezotte (1990); Lomotey (1989); Merrick (1988); Pate (1981, 1988); Pine and Hilliard (1990); Rich (1987); Swisher (1990); Valverde (1988)

2.5.5 Administrators and Teachers Provide Challenging Academic Content and English Language Skills for Language Minority Students.

Administrators and teachers:

a. Offer language minority students a strong academic core program, like that provided for other students.
b. Identify and review promising practices for language-minority students.
c. Conduct assessment of English and native language proficiency as students enroll in the school and periodically thereafter.
d. Provide non-English-speaking (NES) students intensive English-as-a-Second Language instruction.
e. Provide NES students instruction in their native languages for their core classes whenever possible. If this is not feasible, they provide native-language materials and, where possible, tutoring in their native languages.
f. Provide limited-English-proficient (LEP) students a combination of instruction in their native languages and instruction in English.
g. Engage volunteer tutors to help students to acquire English language literacy.
h. Group students heterogeneously by ability and language so that they can learn from one another.

Ascher (1985); ASCD Panel (1987); Collier (1992); Cummins (1986); Darder and Upshur (1992); Fillmore and Valadez (1986); Garcia, E. E. (1988, 1990); Lucas, Henz, and Donato (1990); National Hispanic Commission (1984); Ramirez, Yuen, and Ramey (1991); Reyes (1992); Saldate, Mishra, and Medina (1985); So (1987); Tikunoff (1985); Valadez and Gregoire (1989)

2.6 ASSESSMENT

2.6.1 Administrators and Other Building Leaders Monitor Student Learning Progress Closely.

Administrators and teachers:

a. Engage in professional development activities to build assessment skills and evaluate the quality of assessment methods and data.
b. Collect and review performance data to ensure early identification and treatment of young children with learning difficulties.
c. Review test results, grade reports, attendance records, and other materials to spot potential problems, and make changes in instructional programs and school procedures to meet identified needs.
d. Review assessment instruments and methods for cultural, gender, or other bias and make changes as needed.
e. Make summaries of student performance available to all staff, who then assist in developing action alternatives. They also make periodic reports to parents and community members.
f. Coordinate assessment activities so that district, school, and classroom efforts work together and duplication of effort is minimized. They review assessment methods to ensure alignment with curriculum and instruction.

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g. Establish and use procedures for collecting, summarizing, and reporting student achievement information. They establish and periodically update individual student records and use them to make group summaries and review them for trends.
h. Include assessment of school climate as part of assessment of student performance.
i. Use data from periodic assessment reviews when conducting curriculum reviews.

Block (1983); Blum and Butler (1985); Bossert (1985); Brookover (1979); Cawelti (1987); Cohen, S. A. (1991, 1994); Cohen, S. A., et al. (1989); Corcoran (1985); Costa and Kallick (1992); Edmonds (1979a); Everson, et al. (1986); Fullan (1992); Griswold, Cotton, and Hansen (1986); Glasman (1984); Hawley, et al. (1984); Hord (1992a); Leithwood and Montgomery (1982); Levine and Lezotte (1990); Louis and Miles (1989); Madden, Lawson, and Sweet (1976); Mortimore and Sammons (1987); Mortimore, et al. (1988); Pajak and Glickman (1987); Purkey and Smith (1983); Slavin, Karweit, and Madden (1989); Stiggins (1991); Venezky and Winfield (1979); Weber (1971); Wilson and Corcoran (1988)

2.6.2 Administrators and Other Building Leaders Develop and Use Alternative Assessments.

Administrators and other leaders:
a. Engage schoolwide and community support for increased use of alternative assessments.
b. Ensure that alternative assessments align with curriculum and instruction.
c. Encourage teachers to incorporate alternative assessment practices in their classrooms.
d. Arrange for staff development activities to build alternative assessment skills, such as developing rubrics, establishing standards, designing performance tasks, and managing portfolio assessments.
e. Work with staff to systematize methods for collecting and reporting information produced by alternative assessments.
f. Collect and make available alternative assessment resources developed and used in other settings.

Baker (1992); Belk and Calais (1993); Calfee and Perfumo (1993); Costa and Kallick (1992); Haas (1990); Herman (1992); Hodges (1992); McMullen (1993); Newell (1992); Rafferty (1993); Shavelson and Baxter (1992); Shepard (1989); Telese (1993); Wiggins (1992)

2.7 SPECIAL PROGRAMS

2.7.1 Administrators and Teachers Identify Dropout-Prone Students and Implement Activities to Keep Them in School.[1]

Administrators and teachers:
a. Explore the possibility of housing dropout-prevention services in settings outside of schools.
b. Implement flexible programming and scheduling to accommodate students who are parents or who work during school hours.
c. Implement—or establish links with—programs to help dropout-prone students with school-to-work transitions.
d. Form partnerships with businesses in the community and promote community-based learning.
e. Secure input from dropout-prone students for designing dropout prevention/reduction activities.

[1] Effective practices for assisting dropout-prone students are much the same as those for supporting any high-needs student. The functions listed in this section are those additional practices with particular relevance to reducing the incidence of dropping out at the secondary level.

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f. Provide students with learning activities that have real-world applications.

Baecher, Cicchelli, and Baratta (1989); Bickel, Bond, and LeMahieu (1986); Dryfoos (1990); Glaser, et al. (1992); Hergert (1991); Mayer (1993); Orr (1987); Paredes and Frazer (1992); Peck, N., Law, and Mills (1987); Presson and Bottoms (1992); Wehlage (1991); Williams, S. B. (1987); Woods (1995)

2.7.2 Administrators and Teachers Use Validated Practices for Tobacco, Alcohol, and Drug Prevention.

Administrators and teachers:

a. Begin prevention activities with students in the primary grades and continue them through high school. Programs for young children focus on positive self-regard and making healthy choices; those for older children include drug-specific activities.
b. Provide activities that move beyond giving information to influencing attitudes and behavior.
c. Use multiple strategies, including provision of accurate drug-related information in combination with training in general life skills, "refusal skills," understanding and resisting media pressure, and positive alternatives to drug use.
d. Incorporate at least some peer-led activities into prevention programs.
e. Provide periodic "booster" sessions after initial instruction, recapping major points and offering opportunity for discussion and role-playing.
f. Target some prevention activities to specific, high-risk groups—inner-city youth, girls, gay and lesbian youth, and emotionally disturbed and learning disabled students.
g. Focus more on short-term, personally meaningful consequences of substance use—bad breath from smoking, loss of driver's license, etc.—than on long-term health risks.
h. Know that "scare tactics" do not work and avoid using them.
i. Set and enforce clear policies regarding drug possession, use, or sale.
j. Provide aftercare support for students who have received alcohol or drug treatment or are involved in smoking cessation.
k. Enlist the support of parents and community members in designing and reinforcing the school's prevention program.
l. Collaborate with community agencies and volunteers to provide drug-free athletic and other activities for students.

Austin (1994); Bangert-Drowns (1988); Benard, Fafoglia, and Perone (1987); Cotton (1990a); DeJong (1987); Ellickson and Robyn (1987); Ertle (1994); Glynn (1983); Gold, Gold, and Carpino (1989); Goodstadt (1986); Harkin (1987); Johnson, E. M., et al. (1988); Kim, McLeod, and Palmgren (1989); Oei and Fea (1987); Pearish (1988); Polich, et al. (1984); Randall (1989); Schaps, et al. (1986); Singer and Garcia (1988); USDE (1992, n.d.); USDHHS (1987)

2.7.3 School Leaders and Staff Collaborate with Community Agencies to Support Families with Urgent Health and/or Social Service Needs.

School leaders and staff:

a. Learn about the array of medical and social service providers in the community and how to access them.
b. Learn about models for school-community collaboration for needy families that have been implemented in other settings.
c. Work with health and social service agencies to coordinate the delivery of services to children and families. Whether or not the school is the entry point for families to seek services is a matter of local preference.
d. Assist needy families to access appropriate health and social service facilities and providers in the community.

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e. Identify needy children and families early in the children's school experience and work with community agencies on prevention and intervention activities.
f. Engage in true collaboration with community agencies by, for example, providing office space for a social service provider whose salary is paid by an external agency.

Ascher (1988, 1990); Bain and Herman (1989); Cohen, D. L. (1989); Comer (1986, 1988); Cotton (1992c); Cuban (1989); Fillmore and Valadez (1986); Gursky (1990); Guthrie and Guthrie (1991); Hodgkinson (1991); Madden, et al. (1993); McCurdy (1990); McPartland and Slavin (1990); Oakes (1987); Pollard (1990a,b,c); Sylvester (1990)

2.8 PARENT AND COMMUNITY INVOLVEMENT

2.8.1 Administrators and Teachers Involve Parents and Community Members in Supporting the Instructional Program.

Administrators and teachers:
a. Communicate repeatedly to parents that their involvement can greatly enhance their children's school performance, regardless of their own level of education.
b. Offer parents several different options for their involvement, e.g., tutoring their children at home, assisting in classrooms, participating in parent-teacher conferences, etc.
c. Strongly encourage parents to become involved in activities that support the instructional program.
d. Provide parents with information and techniques for helping students learn (e.g., training sessions, handbooks, make-and-take workshops, etc.).
e. Establish and maintain regular, frequent home-school communications. This includes providing parents with information about student progress and calling attention to any areas of difficulty.
f. Involve community members in schoolwide and classroom activities, giving presentations, serving as information resources, functioning as the audience for students' published writings, etc.

Armor, et al. (1976); Becher (1984); Block (1983); Brookover (1979); Cotton (1991b); Cotton and Wikelund (1989); Griswold, Cotton, and Hansen (1986); Gursky (1990); Hawley, et al. (1984); Henderson (1987); Levine and Stark (1981, 1982); Sattes (1985); Stevens (1985); Tangri and Moles (1987); Walberg, Bole, and Waxman (1980); Walson, Brown, and Swick (1983)

2.8.2 Administrators and Teachers Involve Parents and Community Members in School Governance.

Administrators and teachers:
a. Develop written policies which legitimize the importance of parent involvement and provide ongoing support to parent involvement efforts.
b. Communicate clearly to parents the procedures for involvement and use the procedures consistently.
c. Engage parent and community participation on school-based management teams.
d. Conduct vigorous outreach activities—especially in culturally diverse school settings—to involve parent and community representatives from all cultural groups in the community.
e. Make special efforts to involve the parents of disadvantaged, racial minority, and language minority students, who are often underrepresented among parents involved in the schools.
f. Work with cultural minority parents and community members to help children cope with any differences in norms noted between the home and the school.
g. Involve parents and community members in decision making regarding school governance and school improvement efforts.

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h. Monitor and evaluate parent/community involvement activities and continually work to keep participation effective.

i. Publish indicators of school quality and provide them to parents and community members periodically to foster communication and stimulate public action.

j. Involve business, industry, and labor in helping to identify important learning outcomes and in providing opportunities to apply school learnings in workplace settings.

Baecher, Cicchelli, and Baratta (1989); Becher (1984); Boyd (1992); Cotton and Wikelund (1990); David (1989); Glaser, et al. (1992); Grobe (1993); McCarthy and Still (1993); Murphy (1988); New York SDE (1974); Pavan and Reid (1994); Sammons, Hillman, and Mortimore (1994); Stacey (1994); Stiller and Ryan (1992); Wang, Haertel, and Walberg (1993-1994); Williams and Chavkin (1989); Wilson, B. L., and Corcoran (1988)

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3. DISTRICT CHARACTERISTICS AND PRACTICES

The district supports and monitors efforts toward improved student learning, delegating much of the responsibility for operations to the individual schools. Leadership and training in curriculum, instruction and assessment, together with positive district-school interactions, create a climate conducive to successful teaching and learning.

3.1 LEADERSHIP AND PLANNING

3.1.1 District Leaders and Staff Hold and Communicate High Expectations for the Entire School System.

District leaders and staff:

a. Believe that all students can learn and that district educators have considerable influence on the level of student success. They communicate to all constituents that learning is the most important purpose of schooling.
b. Establish and protect goals and priorities for improvement. They make goals and priorities highly visible throughout the school community, particularly through efforts of the superintendent. Goals focus on improving student performance.
c. Work with one another and with school personnel for the benefit of students; they review all proposals for action in terms of their potential effect on students.
d. Establish plans and activities that focus on improving instructional effectiveness, and communicate the expectation that instructional programs will be improved over time.
e. Review recruitment, selection, and promotion policies periodically to assure that creative, innovative building administrators are hired and retained.
f. Make use of proven practices to recruit and retain excellent teachers, including teacher mentoring, rich inservice opportunities, and hiring members of cultural minorities, particularly in culturally diverse settings.
g. Establish and maintain good communication with the school board regarding progress on school improvement plans.

Boone (1992); Corbett and Wilson (1992); Everson, et al. (1986); Hallinger and Hausman (1993); Hallinger, Bickman, and Davis (1989); Levine (1990); Levine and Lezotte (1990); Lomotey (1989); Louis and Miles (1989); Miller, Smey-Richman, and Woods-Houston (1987); Murphy and Hallinger (1986, 1988); Odell and Ferraro (1992); Pajak and Glickman (1987); Pine and Hilliard (1990); Purkey and Smith (1983); Schlechty (1985); Wilson, B. L., and Corcoran (1988)

3.1.2 District Leaders and Staff Establish Policies and Procedures that Support Excellence and Equity in Student Performance.

District leaders and staff:

a. Hold and communicate the conviction that all children can be successful learners; those in culturally diverse districts regard their diversity as a strength.
b. Review district policies periodically to determine the effect they have on student performance. They strengthen policies as needed to increase support for specific district goals and for improving student performance and equity.
c. Establish policies and procedures that focus on improving student performance and require ongoing improvement efforts at every level in the district. They establish guidelines that provide a framework for action, rather than mandating specific steps.
d. Establish policies which foster the development of clear goals in each school building and work with school staffs to translate these into measurable results.
e. Encourage and support school-based management. They share decision making regarding budget, staffing, and curriculum with school leaders.

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f. Require schools to generate action plans for improvement and carry them out. District administrators communicate the expectation that building principals serve as instructional leaders.
g. Establish and enforce expectations for participation in improvement efforts; building administrators are included in district planning activities.
h. Review regulations and requirements governing construction, remodeling and maintenance of school facilities to ensure that optimal physical environments are provided for teaching and learning.
i. Use their knowledge of research to guide policy development and school monitoring. They avoid (or discontinue) the use of district or school practices that conflict with the findings of well-designed research.

Biester, et al. (1983); David (1989); Dentler (1994); Everson, et al. (1986); Fullan (1993); Jackson and Crawford (1991); Jacobson (1988); Levine (1990); Levine and Lezotte (1990); Libler (1992); Murphy, et al. (1987); Paredes and Frazer (1992); Peterson, Murphy, and Hallinger (1987); Purkey and Smith (1983); Schlechty (1985); Wilson and Corcoran (1988); Wohlstetter, Smyer, and Mohrman (1994)

3.2 CURRICULUM

3.2.1 District Leaders and Staff Conduct Careful Curriculum Planning to Ensure Continuity.

District leaders and staff:
a. Establish frameworks, guidelines, and quality standards to unify curriculum planning districtwide. They ensure that curriculum and instructional planning is consistent at the district, school, and classroom levels.
b. Work with schools to identify a limited number of priority objectives to clarify what students should learn. They sequence the objectives by grade level; review them for technical quality, specificity, and clarity; and target them for students by developmental level.
c. Identify learning materials, available space, and special facilities, staff and other instructional resources and catalogue them by objective or goal area.
d. Match resources to learning objectives and student developmental levels and check them for accuracy and alignment. They also identify validated instructional strategies, especially for high-priority objectives.
e. Conduct districtwide curriculum alignment and review efforts to ensure high quality of instruction and consistency across schools.
f. Provide direct support for building and classroom curriculum efforts; superintendents, in particular, take an active role in collaborating with schools on curriculum and instruction.
g. Provide support for integration of traditional subject areas, including consultation assistance, planning time, resources, and training.

Behr and Bachelor (1981); Corbett and Wilson (1992); David (1989); Denham and Lieberman (1980); Everson, et al. (1986); Hord and Huling-Austin (1987); Miller, R., et al. (1987); Murphy and Hallinger (1986, 1988); Odell and Ferraro (1992); Pajak and Glickman (1987); Valadez and Gregoire (1989); Wilson, B. L., and Corcoran (1988)

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3.3 DISTRICT-SCHOOL INTERACTIONS

3.3.1 District Leaders and Staff Delegate Considerable Decision-Making Authority to Schools.

District leaders and staff:

a. Work with schools to establish broadly representative school-based management teams that draw their membership from administrators, teachers, students, non-certified staff, parents, and community members.
b. Make themselves available to provide training, research-based information, and on-site assistance to help schools to implement school-based management.
c. Provide clear guidelines to school teams about their role and the extent of their authority, information about school operations and budgets, and skills training in group processes such as decision making and conflict resolution.
d. Provide resources, such as time and financial support for planning and carrying out team activities.
e. Ensure that team members have genuine decision-making power.
f. Increase schools' latitude for decision making through helping them to have state and local regulations waived as appropriate.
g. Involve teacher union representatives in discussions of school-based management, which increases their willingness to be flexible about contract constraints.
h. Assist schools to evaluate and modify their school-based management structures based on continuous review of program activities and their effects.

Arterbury and Hord (1991); Caldwell and Wood (1988); Ceperley (1991); David (1989); David and Peterson (1984); Davidson, B. M. (1993); Duttweiler (1990); English (1989); Fullan (1993); Hall (1992); Henderson and Marburger (1990); Hord (1992b); Levine and Eubanks (1989); Lewis (1989); Libler (1992); Malen and Ogawa (1988); Malen, Ogawa, and Kranz (1990a,b); Mojkowski and Fleming (1988); Murphy and Hallinger (1993); Mutchler (1989); Odden and Wohlstetter (1995); White, P. A. (1989)

3.3.2 District Leaders and Staff Encourage, Support, and Monitor School Improvement Efforts.

District leaders and staff:

a. Delegate much of the responsibility for school improvement to principals and school site management groups, while at the same time providing guidance and support for school improvement efforts.
b. Acquaint site management groups with promising practices from inside and outside the district, encourage their use, and work with building staffs to implement practices selected.
c. Monitor implementation of policies and procedures in individual schools, providing advice, clarifications, technical feedback, and support services. They pay particular attention to the progress of improvement efforts.
d. Assist local schools in their improvement efforts by providing consultation, materials development, and training assistance as requested by building personnel.
e. Establish a resource pool for building-level improvement projects. Departmental budgets include resource items specifically related to the attainment of district goals and priorities.
f. Provide principals and school staffs ongoing programs of staff development focused on strengthening instructional leadership skills, and strongly encourage them to pursue other professional development activities.
g. Protect schools from political or economic turbulence which might disrupt classroom instruction.

Berman and McLaughlin (1979); Biester, et al. (1984); Boone (1992); Corbett and Wilson (1992); David (1989); Everson, et al. (1986); Gersten, Carnine, and Zoref (1986); Hord (1992); Huberman

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and Miles (1984a); Jackson and Crawford (1991); LaRocque and Coleman (1988); Levine and Lezotte (1990); Levine and Stark (1982); Louis and Miles (1989); Miller, R., et al. (1987); Murphy, et al. (1987); Murphy and Hallinger (1993); Pajak and Glickman (1987); Peterson, Murphy, and Hallinger (1987); Purkey and Smith (1983); Schlechty (1985); Stringfield (1995); Wilson and Corcoran (1988)

3.3.3 District Leaders Recognize and Reward Excellence.

District leaders:

a. Use clear, negotiated criteria for supervision and evaluation of building administrators. Superintendents personally supervise and evaluate principals whenever possible.
b. Establish award programs for schools, administrators, teachers and students and take a visible role in recognizing excellence. District award programs complement school award programs.
c. Base awards on contributions staff have made to improving student performance. They use agreed-upon criteria for determining award recipients, rather than comparison to peers.
d. Make certain that district monitoring of school operations and improvement efforts is accompanied by recognition of successes.

David (1989); Everson, et al. (1986); Louis and Miles (1989); Miller, R., et al. (1987); Murphy and Hallinger (1988); Murphy and Peterson (1985); Murphy, et al. (1987); Odell and Ferraro (1992); Wilson, B. L., and Corcoran (1988)

3.3.4 District Leaders Assist Schools to Carry Out Prevention Activities and to Support High-Needs Students and Families to Access Needed Services.

District leaders:

a. Work with schools to develop and implement firm discipline policies.
b. Help school staff to create positive climates that can help reduce the incidence of illegal and/or disruptive behavior.
c. Arrange training for school staff in developing and implementing prevention programs for dropout, pregnancy, drugs, gangs, and violence.
d. Stand behind schools as they enforce policies regarding illegal and/or disruptive activities.
e. Assist schools in identifying and building linkages with social service and health agencies to support high-needs students and their families.
f. Help schools to identify appropriate placements for students who are not able to function well in the regular school environment, e.g., school-within-a-school.

Baecher, Cicchelli, and Baratta (1989); Barnes (1984); Benard (1991, 1993); Cohen, D. L. (1989); Cotton (1990a, 1992c); Driscoll (1990); Fenley, et al. (1993); Murray and Mess (1986); Sylvester (1990); Wilson-Brewer, et al. (1991); Woods (1995)

3.4 ASSESSMENT

3.4.1 District Leaders and Staff Monitor Student Progress Regularly.

District leaders and staff:

a. Collect and summarize information about student performance on a regular basis, identify areas of strength and weakness, and prepare and share reports throughout and community, giving special emphasis to priority goals and objectives.
b. Coordinate assessment efforts to ensure quality, avoid duplication of effort, and minimize disruption of classroom instruction.

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c. Check alignment among tests, curriculum, and instruction regularly and work with schools to improve it.
d. Conduct district-level assessments, with major tests announced well in advance to facilitate building and classroom scheduling. They establish and use specific routines for scoring, storing, reporting, and analyzing results, and report results quickly.
e. Use assessment results to evaluate programs and target areas for improvement.
f. Provide direct support for building- and classroom-level assessment efforts.

Behr and Bachelor (1981); Everson, et al. (1986); Hord (1992); Hord and Huling-Austin (1986); Levine and Lezotte (1990); Levine and Stark (1982); Murphy and Hallinger (1986, 1988); Murphy, et al. (1987); Pajak and Glickman (1987)

3.4.2 District Leaders and Staff Support Schools' Development and Use of Alternative Assessments.

District leaders and staff:
a. Make district support of alternative assessment practices known throughout the district and its community.
b. Provide staff development for building skills needed for designing, administering, and scoring alternative assessments.
c. Develop and maintain a districtwide "tool kit" of exemplary tasks, task templates, and design criteria for tasks.

Baker (1992); Belk and Calais (1993); Wiggins (1992)

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Effective Schooling Research Bibliography

Introduction

Literature related to effective schooling has been gathered together in this bibliography. Research reports, syntheses, meta-analyses, reviews, and analytical commentaries are included. References listed in the preceding section, plus many others, can be found here in full bibliographic form.

For those who wish to delve more deeply into topics addressed in the preceding pages, but do not have time to read every document cited in the bibliography, we have identified an array of high-quality summaries and reviews. These are marked with an asterisk (*).

Finally, we need to remind readers that this bibliography is not comprehensive. While we believe that the core of the literature is well represented, some studies not cited here may well be important in furthering the understanding of educational effectiveness.

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Resources for Research

to Inform School Improvement

U. S. Education Department's Publications Web Page

This web page contains numerous publications and research syntheses on various topics. It can be reached at:
http://www.ed.gov/pubs/collect.html.
Once you reach this web page, you can link to USED publication, research briefs by other groups and the ERIC Clearinghouses.

A specific document that may be helpful is *Turning Around Low-Performing Schools: A Guide for State and Local Leaders*. This publication may be accessed at: **http://www.ed.gov/pubs/turning**.

National Center for Educational Statistics, USED

The National Center for Educational Statistics, USED, maintains several national data bases, compiles trend reports, and issues research reports. web page is: **http://www.ed.gov/NCES**. Two areas of particular interest might be the National Assessment of Educational Progress (**http://www.ed.gov/NCES/naep**) and the Third International Mathematics and Science Survey (**http://www.ed.gov/NCES/timms**).

Educational Resources Information Clearinghouse

ERIC is a long-standing and well-known resource for conducting searches on specific topics of interest. They have an interactive web page to search topics at: **http://www.ericir.syr.edu**.

Education Commission for the States

ECS is an organization that represents and serve state governors, chief state school officers, and legislators. They produce policy research reports and can be reached through: **http://www.ecs.org**.

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Regional Education Laboratories

The USED funds several Regional Labs that often produce research and policy reports. The Southeastern Regional Vision for Education (SERVE) serves North Carolina. The compendium of research provided in Section I came from the Northwest Lab. The Northcentral Lab has a page devoted to the comprehensive school reform initiative. However, each laboratory may have publications dealing with areas of school improvement. Web pages and phone numbers for the Educational Laboratories are listed below.

SERVE: **http://www.serve.org/** (800) 755-3277
Laboratory for Student Success: **http://www.temple.edu/LSS/**
(800) 892-5550
Northwest Regional Educational Laboratory: **http://www.nwrel.org/**
(503) 275-9500
North Central Regional Educational Laboratory: **http://www.ncrel.org**
(708) 571-4700
Mid-Continent Regional Educational Laboratory: **http://www.mcrel.org/**
(303) 337-0990
Southwest Educational Development Laboratory: **http://www.sedl.org/**
(512) 476-6861
Appalachia Educational Laboratory: **http://www.ael.org/** (800) 624-9120
WestEd: **http://www.fwl.org/** (415) 565-3000
Northeast and Islands Laboratory at Brown: **http://www.vlab.brown.edu/**
(800) 521-9550
Pacific Resources for Education and Learning: **http://www.prel.hawaii.edu**
(808) 533-6000

RAND

RAND (acronym for Research and Development) is a nonprofit organization to improve policy and decision making through research and development. Education is one of several areas of research for this organization. They have conducted evaluations of comprehensive educational reform, technology, and other areas of educational improvement and policy. Their education center is located at: **http://www.rand.org/centers/iet/**. Their phone is: (310) 393-0411.

Education Week

The weekly education newspaper often contains research syntheses on topics on current interest. Web page: **http://www.edweek.org/**

Professional Organizations

Various professional organizations provide policy research and related information. Several that might provide information of interest are listed.

American Educational Research Association: **http://www.aera.net**
This web page links to publications by AERA as well as publications sponsored by AERA. The latter include the *Encyclopedia of Educational Research, Handbook of Research on Teaching,* and *Handbook of Research on Curriculum.* (**http://www.aera.net/pubs/sponsored.html**)
National Education Association: **http://www.nea.org**
American Association of School Administrators: **http://www.aasa.org**
Association for Supervision and Curriculum Development:
http://www.ascd.org

N. C. Department of Public Instruction

A few research and evaluation reports are being placed on NCDPI's web page. Selected reports are available for sale through the Publications Office.
http://www.dpi.state.nc.us

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PROFESSIONAL DEVELOPMENT EVALUATION

Title of Presentation:

Objective(s)/Purpose(s):

Presenter: Location:

Participant's Position: School:

Part I

1. What was the most useful part of this activity?

2. What was the least useful part of this activity?

3. What did you learn from this activity?

4. How will this help you in your position?

5. Why are you attending this professional development?

Part II

Please evaluate the activity by checking the appropriate column according to the scale below.

SA = Strongly Agree A - Agree D = Disagree SD = Strongly Disagree

	Statement	SA	A	D	SD
1.	The purpose(s)/objective(s) of the activity were clear.				
2.	The activity increased my knowledge of the content area.				
3.	The activity was organized effectively.				
4.	Questions were allowed and encouraged.				

Part III

1. In order to meet your needs, what is the first follow-up that should be offered?

2. Comments/Suggestions:

For questions about this skill packet on Evaluation, Data Collection and Analysis, Research and Development, contact

Public Schools of North Carolina
Department of Public Instruction
Division of School Improvement

Carolyn Cobb, Chief, Evaluation Section, Division of Accountability Services, 919-715-1351

Dee Brewer, Research and Evaluation Consultant, Evaluation Section, Division of Accountability Services, 919-715-1365

Belinda Black, Research and Evaluation Consultant, Reporting Section, Division of Accountability Services, 919-715-2213

Skill Packets Available Through NC HELPS

Classroom Management

Curriculum Alignment

Extended Opportunities for Student Learning

Leadership Development

Needs Assessment

Safe and Orderly Schools

School-Based Partnerships

Parental/Community Involvement: Strategies to Train Parents

Planning for School Improvement

Professional Development

Using Data for School Improvement

Working with Today's Families